

Appendix I Supplemental Chapter 2 Attachments

This Appendix contains the following materials:

Attachment A: Bridge Structure Locations (figure, 1 page)

Attachment B: Descriptions of Individual Bridges by Alternative and Design Variation
(tables, 11 pages)

Attachment C: Bridge Location Planning Process Avoidance and Minimization
(text, 2 pages)

Attachment D: Summary of Bridge Descriptions and Avoidance of Jurisdictional Areas
– Modified MCP (table, 2 pages)

Attachment E: Bridges, Culverts, and Wildlife Crossings (figures, 3 pages)

Attachment F: Bridges and Wildlife Crossings for All Modified Build Alternatives
(table, 1 page) and the Location and Cross Section of Wildlife Crossing
No. 10 (figure, 1 page)

Attachment G: Local Circulation Modifications (table, 6 pages)

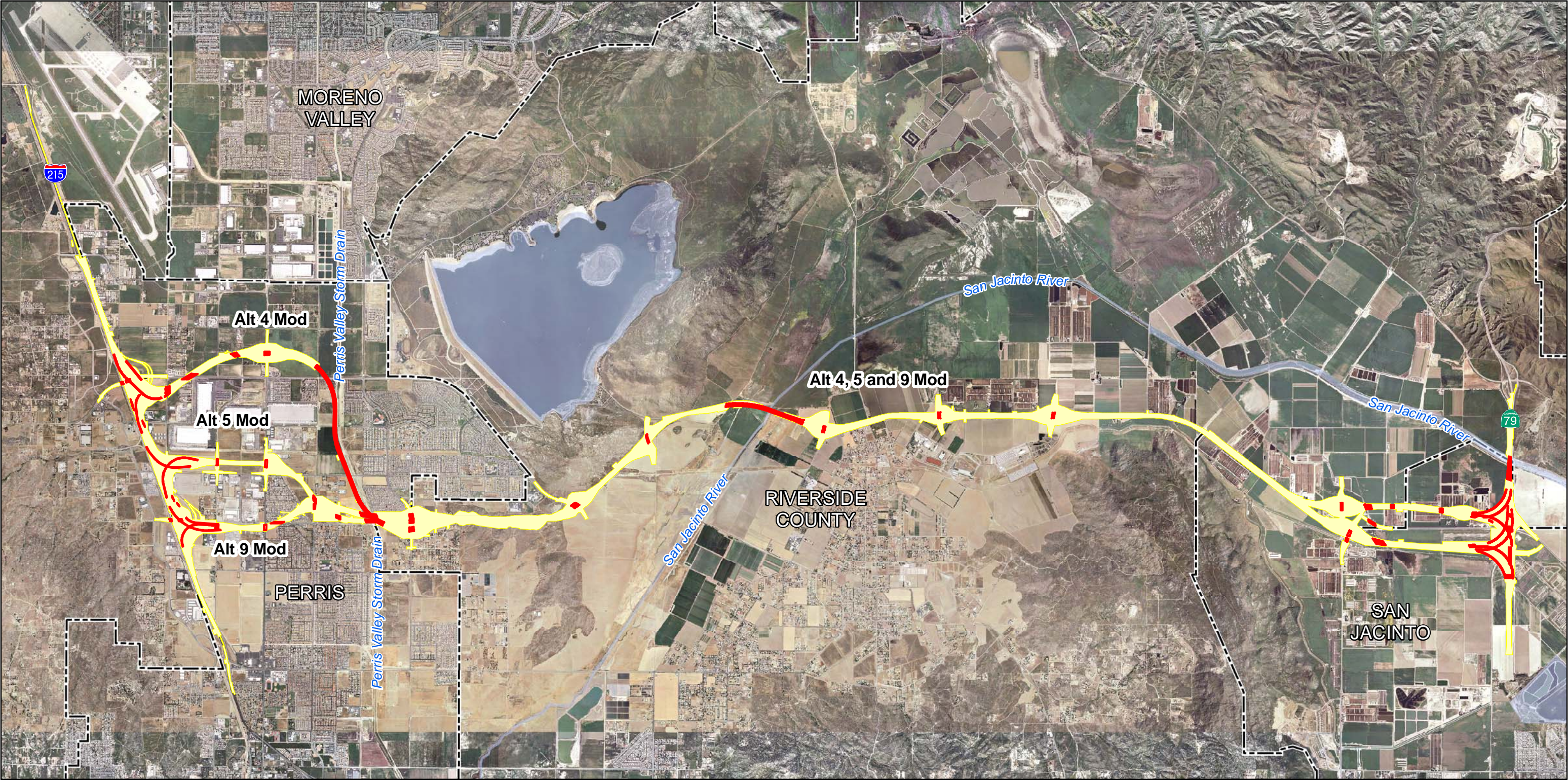
Attachment H: Conceptual Plans of the Preferred Alternative (Alternative 9 Modified
with the San Jacinto River Bridge Design Variation) (Figure H-1,
40 pages)

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Attachment A: Bridge Structure Locations


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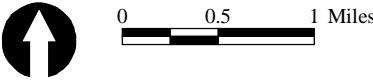
LEGEND

 Limits of Proposed Improvements
(All Alternatives and Design Variations)

 Bridge Structure Location

APPENDIX I
Attachment A

SOURCE: Jacobs Engineering (02/2011)



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Bridge Structure Locations
08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)



Attachment B: Descriptions of Individual Bridges by Alternative and Design Variation

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BRIDGES

	(1)	(2)	(3)
Bridge Name	Placentia Ave OH at RR	Placentia Ave OC at I-215	WN Connector
Length - (ft)	125.29	216.16	1,364.23
Category	E	E	C

	(4)	(5)	(6)
Bridge Name	WN Connector at Webster UC	WS Connector	WS Connector at Webster UC
Length - (ft)	221.08	2,272.85	238.27
Category	B	C	B

	(7)	(8)	(9)
Bridge Name	SE Connector	SE Connector at Webster UC	Webster UC
Length - (ft)	3,755.96	345.82	258.97
Category	C	B	B

	(10)
Bridge Name	Cajalco OH at Railroad
Length - (ft)	143.15
Category	E

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation),
D=Water Resource, E=Widening

ALTERNATIVE 4 MODIFIED

BRIDGES

	(1)	(2)	(3)
Bridge Name	Ramona	Ramona	Indian Ave
Length - (ft)	Expwy UC EB	Expwy UC WB	UC EB
Category	585.00	585.00	291.39
	B	B	B

	(4)	(5)	(6)
Bridge Name	Indian Ave	Perris Blvd	Perris Blvd
Length - (ft)	UC WB	UC EB	UC WB
Category	298.77	310.00	310.00
	B	B	B

	(7)	(8)	(9)
Bridge Name	MCP WB	MCP EB	Evans Rd WB
Length - (ft)	Viaduct	Viaduct	254.66
Category	9,700.00	9,700.00	B
	D	D	

	(10)
Bridge Name	Evans Rd EB
Length - (ft)	269.24
Category	B

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation),
D=Water Resource, E=Widening

BRIDGES

	(1)	(2)	(3)
Bridge Name	Placentia / I-215 OC Widening	Placentia / Railroad OC Widening	NB-EB Connector / Placentia NB On Separation
Length - (ft)	216.16	125.29	173.66
Category	E	E	C

	(4)	(5)	(6)
Bridge Name	WB-SB Connector	SB-EB Connector	SB-EB Connector / Cajalco SB On Separation
Length - (ft)	3,591.91	2,772.66	374.58
Category	C	C	C

	(7)	(8)	(9)
Bridge Name	WB-NB Connector / Cajalco NB Off Separation	Cajalco / I-215 OC	Cajalco / Railroad OC Widening
Length - (ft)	246.51	256.16	143.15
Category	C	B	E

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation),
D=Water Resource, E=Widening

ALTERNATIVE 5 MODIFIED

BRIDGES

	(1)	(2)	(3)
Bridge Name	Indian Ave OC	Perris Blvd OC	Relands Ave UC
Length - (ft)	366.35	404.71	271.93
Category	B	B	B

	(4)	(5)	(6)
Bridge Name	Relands Ave UC	Wilson Ave UC	Wilson Ave UC
Length - (ft)	258.88	261.65	260.40
Category	B	B	B

	(7)	(8)	(9)
Bridge Name	Perris Storm	Perris Storm	Evan Rd WB UC
Length - (ft)	700.00	700.00	233.00
Category	D	D	B

	(10)
Bridge Name	Evan Rd EB UC
Length - (ft)	233.00
Category	B

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation),
D=Water Resource, E=Widening

BRIDGES

	(1)	(2)	(3)
Bridge Name	Cajalco OH at Railroad	Placentia Ave OH at RR	Placentia Ave OC at I-215
Length - (ft)	143.15	125.00	217.00
Category	E	E	E

	(4)	(5)	(6)
Bridge Name	SB-EB Connector	WB-SB Connector	WB-NB Connector
Length - (ft)	3,271.00	3,141.96	1,806.11
Category	C	C	C

	(7)
Bridge Name	WB-NB Connector Separation
Length - (ft)	246.33
Category	C

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation), D=Water Resource, E=Widening

ALTERNATIVE 9 MODIFIED

BRIDGES

	(1)	(2)	(3)
Bridge Name	<u>Perris Blvd OC</u>	<u>Placentia Ave OC</u>	<u>Redlands Ave OC</u>
Length - (ft)	<u>248.42</u>	<u>538.25</u>	<u>269.94</u>
Category	<u>B</u>	<u>B</u>	<u>B</u>

	(4)	(5)	(6)
Bridge Name	<u>Perris Drain WB</u>	<u>Perris Drain EB</u>	<u>Evans Road WB</u>
Length - (ft)	<u>800.00</u>	<u>800.00</u>	<u>200.00</u>
Category	<u>D</u>	<u>D</u>	<u>B</u>

	(7)	(8)	(9)
Bridge Name	<u>Evans Road EB</u>	<u>Evans Road WB</u>	<u>Evans Road EB</u>
Length - (ft)	<u>200.00</u>	<u>200.00</u>	<u>199.81</u>
Category	<u>B</u>	<u>B</u>	<u>B</u>

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation),
D=Water Resource, E=Widening

BRIDGES

	(1)	(2)	(3)
Bridge Name	Ramona Exp UC	Ramona Exp UC	Ramona Exp WB on-ramp UC
Length - (ft)	253.80	253.80	250.80
Category	B	B	B

	(4)	(5)	(6)
Bridge Name	Bernasconi	San Jacinto River	San Jacinto River
Length - (ft)	419.50	2,985.40	2,985.40
Category	B	D	D

	(7)	(8)	(9)
Bridge Name	Reservoir	Town Center	Park Center
Length - (ft)	300.00	309.00	295.00
Category	B	B	B

	(10)
Bridge Name	Wildlife Crossing
Structure Type	Galv steel
Category	n/a

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation),
D=Water Resource, E=Widening

Lakeview Nuevo Common (ALT-4 MOD, 5 MOD, & 9 MOD)

BRIDGES

	(1)	(2)	(3)
Bridge Name	Warren OC	Warren	Ramona Bridge
Length - (ft)	314.00	180.00	460.00
Category	B	B	B

	(4)	(5)	(6)
Bridge Name	MCP Bridge	MCP Bridge	SB-WB
Length - (ft)	572.00	530.00	350.00
Category	D	D	C

	(7)	(8)	(9)
Bridge Name	SB-WB	NB-WB	EB-NB
Length - (ft)	2,538.50	2,374.80	3,483.00
Category	C	C	C

	(10)
Bridge Name	EB-SB
Length - (ft)	2,260.00
Category	C

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation),
D=Water Resource, E=Widening

SJS (ALT-4 MOD, 5 MOD, & 9 MOD)

BRIDGES

	(1)	(2)	(3)
Bridge Name	SR 79 UC	SR 79 UC	SR79 SB on-ramp
Length - (ft)	183.00	183.00	184.00
Category	B	B	B

	(4)	(5)	(6)
Bridge Name	SR79 NB off-ramp	SR 79	SR 79
Length - (ft)	183.20	870.00	870.00
Category	B	B	B

	(7)	(8)	(9)
Bridge Name	SR79 over Ramona	SR79 SB off-ramp	SR79 NB on-ramp
Length - (ft)	251.00	250.00	255.00
Category	B	B	B

	(10)
Bridge Name	SR79 over SJ River
Length - (ft)	1,233.00
Category	D

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation), D=Water Resource, E=Widening

BRIDGES

	(1)	(2)	(3)
Bridge Name	Warren OC	MCP Bridge	MCP Bridge
Length - (ft)	412.00	342.00	338.50
Category	B	D	D

	(4)	(5)	(6)
Bridge Name	Warren EB on-ramp	Odell	Odell
Length - (ft)	329.00	185.00	185.00
Category	B	B	B

	(7)	(8)	(9)
Bridge Name	Cawston	Cawston	SB-WB
Length - (ft)	187.30	187.30	2,485.00
Category	B	B	C

	(10)	(11)	(12)
Bridge Name	NB-WB	EB-NB/EB-SB	EB-NB
Length - (ft)	3,070.00	226.50	2,345.00
Category	C	C	C

	(13)	(14)
Bridge Name	EB-SB	MCP over SR 79
Length - (ft)	210.00	234.00
Category	C	B

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation), D=Water Resource, E=Widening

SJN (ALT-4 MOD SJN-DV, 5 MOD SJN-DV, & 9 MOD SJN-DV)

BRIDGES

	(1)
	SR79 over SJ
Bridge Name	River
Length - (ft)	1,250.00
Category	D

CATEGORY:

A=Viaduct, B=Service Interchange (OC, UC, Local Street, Ramp), C=System Interchange (Connector, Separation),
D=Water Resource, E=Widening

SJN (ALT-4 MOD SJN-DV, 5 MOD SJN-DV, & 9 MOD SJN-DV) SR-79

**Attachment C: Bridge Location Planning Process Avoidance
and Minimization**

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Appendix I, Attachment C: Bridge Location Planning Process Avoidance and Minimization

1. **General:** To fully integrate environmental avoidance with engineering design the consultant team went through a rigorous process to site wildlife crossings and bridges. This process ensured that engineering considerations did not drive the alignments and alignment features, i.e. bridge length and location. The end result is that the alternatives meet and in most cases exceed MSHCP criteria for accommodating wildlife movement and maintains connectivity between habitat areas.
2. **Initial Alignments:** Initially the alignments for each of the alternatives were laid out to avoid existing reserves and known cultural sites as much as possible, while meeting Caltrans geometric design standards. Though these alignments provided some engineering challenges, this process allowed significant environmental avoidance. If avoidance was not possible, then the alignments were refined to minimize impacts. Following the initial layout, the engineering team and environmental teams held several joint workshops to further ensure that environmental issues and avoidance were adequately addressed. These workshops took place as the environmental surveys were being completed. A final workshop was held after the completion of the environmental surveys to provide final changes to the alignments as the survey information on specific resource locations was known. Additionally, in 2011, the team met with the federal and state resource agencies to discuss if there were any fatal flaws in proposing the San Jacinto River bridge design variation.
3. **Wildlife Crossings:** The environmental and engineering teams worked together to initially site wildlife crossing locations for each of the alternatives. Layouts maximized the use of terrain to provide bridges for wildlife crossings. Bridge locations were identified based on the height and length required to span the terrain. During the environmental and engineering workshops, the bridge locations were discussed to determine if they would be beneficial as wildlife crossings. The environmental team provided input on key areas for crossings, i.e. linkages, as well as spacing between crossings based on MSHCP criteria. Wildlife crossings were sized to provide a minimum of a 1:1 aspect ratio (ratio between distance of undercrossing to the size of the opening in square feet) so that sufficient light is provided for wildlife to see from opening to end. Also a minimum height was established for the safe crossing of the large mammals such as deer. One culvert designed solely for the purpose of a wildlife undercrossing was also designed to facilitate wildlife movement along a proposed MSHCP linkage.
4. **Waters/Wetlands:** The initial layout also took into consideration avoidance of waters and wetlands. Initially, the U.S. Army Corps of Engineer's Special Area Management Plan (SAMP) data was used which provided a useful landscape level view of the waters and wetlands in the area. SAMP data was available for all the alignments. The alignments were changed to avoid these potentially jurisdictional areas as much as possible. Data from the draft MCP Jurisdictional Delineation was compared to the SAMP data to make sure areas were avoided as much as possible. More detailed discussion on the siting of bridge locations over water resources and determination of length of bridge over water resources can be found in Appendix B, Bridge Waters and Wetlands Considerations.

Conclusion: After a draft plan of bridge crossings was completed, the engineering and environmental team met with USFWS and CDFG in September 2006 and presented some typical crossings and locations of all proposed crossings for all alignments. The agencies provided initial feedback and suggestions for additional locations for crossings and to provide some smaller culverts to accommodate movement of smaller mammals. These bridge and wildlife crossings for the original alternatives were carried over to the MCP Build Alternatives for Alternatives 4 Modified, 5 Modified,

and 9 Modified. As discussed above, the San Jacinto River Bridge Design Variation was included in 2011 after discussions with the federal and state resource agencies.

**Attachment D: Summary of Bridge Descriptions and Avoidance of
Jurisdictional Areas – Modified MCP**

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SUMMARY OF BRIDGE DESCRIPTIONS AND AVOIDANCE OF JURISDICTIONAL AREAS—MODIFIED MCP

	Bridge Name and Location	Alternative/s	Reach/ Drainage System*	Length	Height	Wetland Shading Impact**	Positioning Considerations	Impact to Federal and State Jurisdictional Areas
12	Perris Valley Storm Drain 157 + 00.000 254 + 00.000	Alt 4 Modified	Reach 6/DS#60	9,700 feet	17–34 feet	H/W Ratio = 0.22 (34’/156’=0.22) High potential to impact underlying vegetation.	Bridge for Alternative 4 includes a section that is directly adjacent to the west side of the Perris Valley Storm Drain and crosses the Perris Drain north of Placentia Avenue. Bridge also aligned to minimize impacts to local community and to ensure the interchange at Evans meets Caltrans standards. For Alternative 4 a 9,700 ft long bridge is proposed in this area to avoid impacting the floodplain. Approximately 1,200 ft of the bridge is crossing over the Perris Drain.	Bridge for Alternative 4 Modified minimizes impacts to wetlands, waters, and CDFG areas along the Perris Valley Drain. All abutments are located outside of the channel and jurisdictional areas. Some pier bents will impact wetlands, waters and CDFG areas within the Perris Valley Storm Drain. Impacts to jurisdictional areas within entire bridge area/footprint considered to be 90% Temporary/10% Permanent because some piers will be located in jurisdictional areas.
12	Perris Valley Storm Drain 245 + 23.968–252 + 23.948 ft	Alt 5 Modified	Reach 6/DS#60	699.98 feet	19.7–27.9 feet	H/W Ratio = 0.16 (27.9’/170’=0.16) High potential to impact underlying vegetation.	MCP positioned to cross the Perris Valley Storm Drain north of Placentia at a near-perpendicular crossing to reduce length and minimize waters/wetlands impacts. Bridge also aligned to minimize impacts to local community and to ensure the interchange at Evans meets Caltrans standards.	Bridge for Alternative 5 Modified minimizes impacts to wetlands, waters, and CDFG areas along the Perris Valley Drain. All abutments are located outside of the channel and jurisdictional areas. Some pier bents will impact wetlands, waters and CDFG areas within the Perris Valley Storm Drain. Impacts to jurisdictional areas within entire bridge area/footprint considered to be 90% Temporary/10% Permanent because some piers will be located in jurisdictional areas.
12	Perris Valley Storm Drain 242 + 53.000–250+53.000	Alt 9 Modified	Reach 6/DS#60	800 feet	31.5–40.9 feet	H/W Ratio = 0.22 (40.9’/184’=0.22) High potential to impact underlying vegetation.	MCP positioned to cross the Perris Valley Storm Drain north of Placentia at a near-perpendicular crossing to reduce length and minimize waters/wetlands impacts. Bridge also aligned to minimize impacts to local community and to ensure the interchange at Evans meets Caltrans standards.	Bridge for Alternative 9 Modified minimizes impacts to wetlands, waters, and CDFG areas along the Perris Valley Drain. All abutments are located outside of the channel and jurisdictional areas. Some pier bents will impact wetlands, waters and CDFG areas within the Perris Valley Storm Drain. Impacts to jurisdictional areas within entire bridge area/footprint considered to be 90% Temporary/10% Permanent because some piers will be located in jurisdictional areas.
13	San Jacinto River/Lakeview Nuevo 461 + 96.995–505 + 23.202	Alts 4, 5, 9 Modified Base case	Reach 7/ DS#61, DS#62, DS#63	4,326 feet	13.1–41.6 feet	H/W Ratio = 0.22 (33.9’/156’=0.22) High potential to impact underlying vegetation.	MCP mainline bridge crossing the San Jacinto River. Bridge is over 4,320 ft long to completely avoid waters/wetlands impacts while also ensuring that flows downstream are not retained and that flows upstream do not back up. The entire floodplain is crossed by the bridge. Bridge also provides excellent wildlife crossing opportunities for the MSHCP linkage to the San Jacinto Wildlife Area.	Minimal design change from 2008 DEIR/EIS. Bridge completely avoids wetlands, waters, and CDFG areas while crossing the river floodplain. Pier bents will be placed outside all jurisdictional federal and state areas. All abutments and pier bents are located outside of the waters and wetlands. Realignment of existing Ramona Expressway will result in additional grading and is considered to be permanently impacted.
13	San Jacinto River/Lakeview Nuevo 470 + 50.000 – 489 + 91.000	Alts 4, 5, 9 Modified San Jacinto River Bridge Design Variation	Reach 7/ DS#61, DS#62, DS#63	1,941 feet	17.0–35.0 feet	H/W Ratio = 0.22. (33.9’/156’=0.22) High potential to impact underlying vegetation.	MCP mainline bridge crossing the San Jacinto River. Bridge is 1,941 ft long to completely avoid waters/wetlands direct impacts. Bridge also provides excellent wildlife crossing opportunities for the MSHCP linkage to the San Jacinto Wildlife Area.	Design variation added in response to comment received on the 2008 DEIR/DEIS. Bridge completely avoids wetlands, waters, and CDFG areas. Pier bents will be placed outside all jurisdictional federal and state areas. All abutments and pier bents are located outside of the waters and wetlands. Realignment of existing Ramona Expressway will result in additional grading and is considered to be permanently impacted.
13a	Martin Street Undercrossing 461 + 96.995–467 + 28.000	Alts 4, 5, 9 Modified San Jacinto River Bridge Design Variation	Reach 7/ DS#61, DS#62, DS#63	531 feet	28.0–34.0 feet	H/W Ratio = 0.22. (33.9’/156’=0.22) High potential to impact underlying vegetation.	MCP mainline bridge crossing over Martin Street. Bridge is 531 ft long. Bridge adjacent to bridge over San Jacinto River and the San Jacinto Wildlife Area.	None.
14	MCP/SR-79 Interchange, San Jacinto South	Alts 4, 5, 9 Modified	Reach 8/DS#64	Multiple Bridges	38.0–72.8 feet	Unknown	MCP/SR-79 interchange crosses wetlands and waters on the south side of existing Ramona Expressway. Crossings are a combination of bridges and embankment for the connectors with SR-79. This interchange is sited to optimize Caltrans spacing requirements between the next SR-79 Interchanges at Gilman Springs and Sanderson. Aligning MCP along the Colorado River Aqueduct reduces disruption to land use and local circulation.	Waters/wetlands cannot be completely avoided due to the density of ramps and connectors in the area. Connectors and ramps on the southwest quadrant of the interchange impact waters, wetlands, and CDFG areas. Areas within SR-79 Realignment Project footprint are excluded from MCP impact calculations. Jurisdictional areas under bridge structures are considered 90% Temporary/10% Permanent due to unknown placement of piers within jurisdictional areas. Jurisdictional areas within MCP fill included as 100% Permanent impacts. All other jurisdictional areas within connector bridged area considered temporarily impacted.

SUMMARY OF BRIDGE DESCRIPTIONS AND AVOIDANCE OF JURISDICTIONAL AREAS—MODIFIED MCP

	Bridge Name and Location	Alternative/s	Reach/ Drainage System*	Length	Height	Wetland Shading Impact**	Positioning Considerations	Impact to Federal and State Jurisdictional Areas
14	MCP/SR-79 Interchange, San Jacinto North	Alts 4, 5, 9 Modified San Jacinto North DV	Reach 8/DS#64	Multiple Bridges	56.0–90.9 feet	Unknown	MCP/SR-79 interchange crosses wetlands and waters on the north side of the existing Ramona Expressway. Crossings are a combination of bridges and embankment for the connectors with SR-79.	Design primarily overlaps with jurisdictional areas to be impacted by SR-79 at this interchange connector bridges. Areas within SR-79 footprint are excluded from MCP impact calculations. Outside SR-79 footprint, there is only a minor amount of fill material to be placed in wetlands for east to southbound (non-bridged) connector lane, which is considered to be permanent impacts. Permanent impacts also include all jurisdictional areas within footprint outside of bridged areas, even if they exceed the grading limits.
15	San Jacinto River Viaduct/City of San Jacinto 919 + 71.797–932 + 07.777	Alts 4, 5, 9 Modified	Reach 8/DS#66, DS#67	1,235.98 feet	11.2–27.8 feet	H/W ratio=0.24 (27.8’/118’=0.24) (includes existing portion of the bridge) High potential to impact underlying vegetation.	SR-79 bridge crossing the San Jacinto River. Current viaduct will be widened to the west. Widening is required to allow transition from MCP connectors to SR-79 alignment.	Viaduct will minimize impacts to waters/wetlands within the San Jacinto River mainline by placing pier bents in line where they are currently located within the San Jacinto River. Wetlands south of the river will be impacted by bridge pier bents and scour protection. New bridge extended to west. Base case design minimizes impacts to wetlands since widening for connectors is away from these wetlands. Impacts to jurisdictional areas at new widened bridge considered to be 90% Temporary/10% Permanent because some piers will be located in jurisdictional areas. Impacts in all other areas within bridge footprint considered to be temporary.
15	San Jacinto River Viaduct/City of San Jacinto 193 + 04.875–205 + 57.540	All Modified Alts San Jacinto North DV	Reach 8/DS#66, DS#67	1,253.67	11.2–27.8	H/W Ratio = 0.21. (27.8’/135’=0.21) High potential to impact underlying vegetation.	SR-79 bridge crossing the San Jacinto River. Current viaduct will be widened to the west. Widening is required to allow transition from MCP connectors to SR-79 alignment.	Viaduct will minimize impacts to waters/wetlands within the San Jacinto River mainline by placing pier bents in line where they are currently located within the San Jacinto River. Wetlands south of the river will be impacted by bridge pier bents and scour protection. New bridges extended to west, as with base case design. San Jacinto North design variation has wider bridge over wetlands in order to connect to SR-79. Connectors from San Jacinto North DV also span wetlands (which will first be affected by SR-79 project). Impacts to jurisdictional areas at new widened bridge considered to be 90% Temporary/10% Permanent because some piers will be located in jurisdictional areas. Jurisdictional areas outside bridge footprint considered to be temporarily impacted.
38	Unnamed Drainage east of Warren Avenue 837 + 70.000– 843 + 12.000	Alts 4, 5, 9 Modified	Reach 8/DS#64	542 feet	20.4–22.1 feet	H/W Ratio: =0.10 (22.1’/219’=0.10) High potential to impact underlying vegetation.	Two bridges (MCP and realigned Ramona Expressway) to cross non-wetland waters.	Abutments and piers placed outside of jurisdictional limits. Impacts to jurisdictional areas at beneath bridged connectors considered to be 90% Temporary/10% Permanent due to unknown placement of piers within jurisdictional areas; however, piers can potentially be designed to completely avoid jurisdictional areas in the future. Jurisdictional areas outside bridge footprint considered to be temporarily impacted.
38	Unnamed Drainage east of Warren Avenue 826 + 35.681– 829+74.316	Alts 4, 5, 9 Modified San Jacinto North DV	Reach 8/DS#64	338.64 feet	8.4–13.6 feet	H/W Ratio: 0.07 (13.6’/195’=0.07) High potential to impact underlying vegetation.	A single MCP bridge to cross non-wetland waters. No additional bridge crossing for realignment of Ramona Expressway or Warren Avenue (as with base case alternative).	Abutments and piers placed outside of jurisdictional limits. Impacts to jurisdictional areas beneath bridged connectors considered to be 90% Temporary/10% Permanent due to unknown placement of piers within jurisdictional areas; however, piers can potentially be designed to completely avoid jurisdictional areas in the future.

Source: Jacobs Civil Engineering, 2011 and LSA 2011.

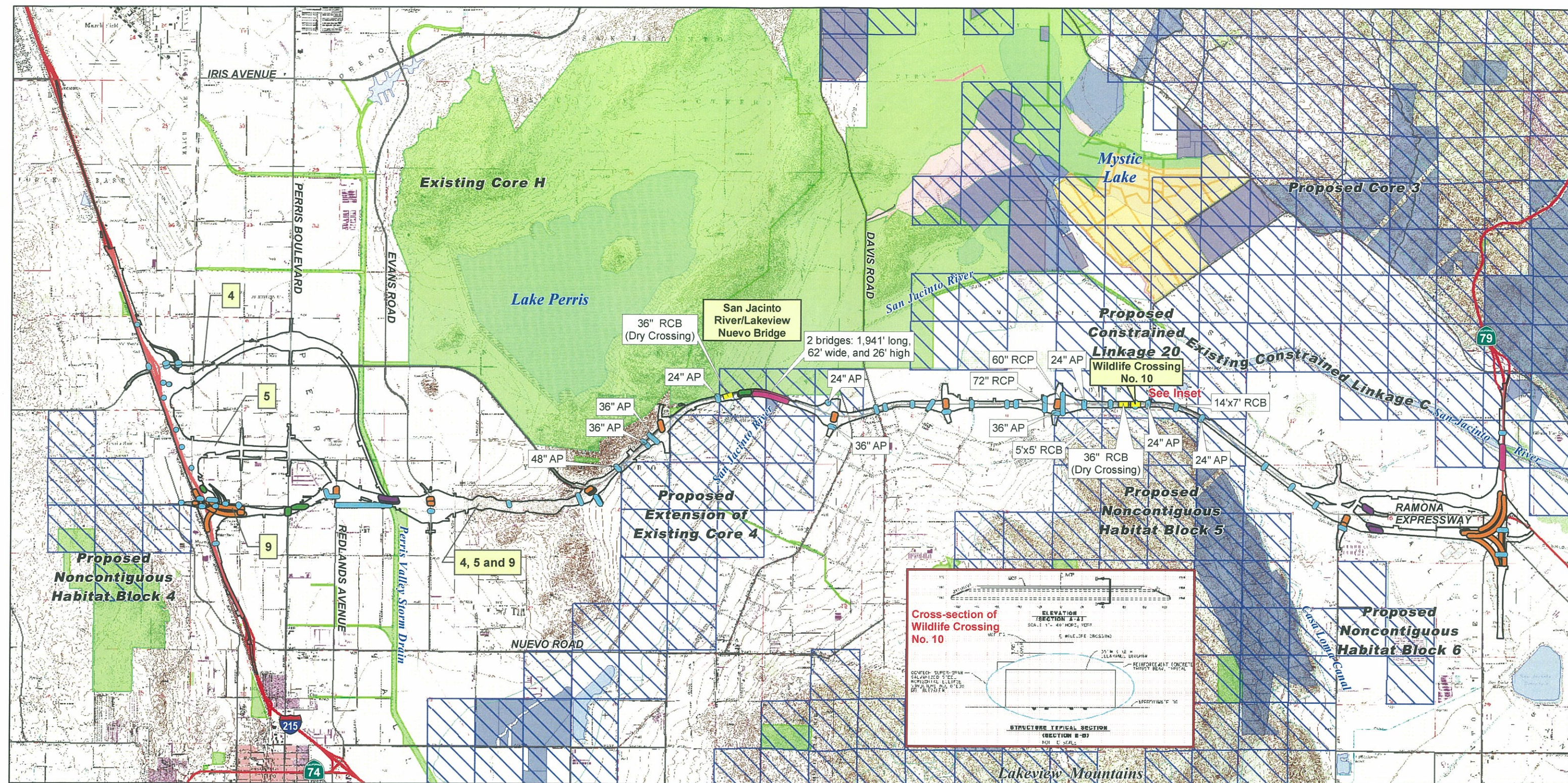
Note: Bridge numbers are the same numbers as described in the 2008 NES Appendix O.

* Reach/Drainage System = geographic portion of study area, as discussed in the 2008 MCP Jurisdictional Delineation.

** HW ratio = height to width ratio. The effect on vegetation from shading for MCP was conducted according to SanClements (2003). For H/W calculations, bridge widths assumed to be entire width of footprint and include the space between bridges (to give a worst-case scenario for shading) and height of bridge location directly above the jurisdictional feature.

Attachment E: Bridges, Culverts, and Wildlife Crossings

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LEGEND

- Limits of Proposed Improvements
- MSHCP Criteria Cells

Public and Quasi Public Lands

- Public/Quasi-Public Conserved Lands
- Pre-existing Conservation Agreements
- San Jacinto Wildlife Area Additional Acquisition
- Additional Reserve Lands

Structures Designed for Wildlife Crossing

- Wildlife Undercrossing Structure
- Bridge/Wildlife Crossing

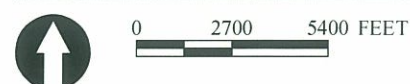
Other Structures

- Bridge (at drainage feature)
- Culvert (at drainage feature)
- Bridge (at local road/terrain crossing)
- Bridge (at System/Service Interchange)

Size and Type of Crossing

- RCB: Reinforced concrete box
- Dry Crossing: Intended for wildlife; not designed for drainage.
- AP: Alternative Pipe - the pipe material option is not selected and allows contractor pipe product options.
- RCP: Reinforced concrete pipe

SOURCE: Jacobs Engineering (2011, 2014); USGS 7.5' Quads; County of Riverside (06/2003 and 06/2014)



R:\UCV531\G\ModifiedProject\Reports\EIR\Apxd_I_AttachE_update.mxd (2/4/2015)

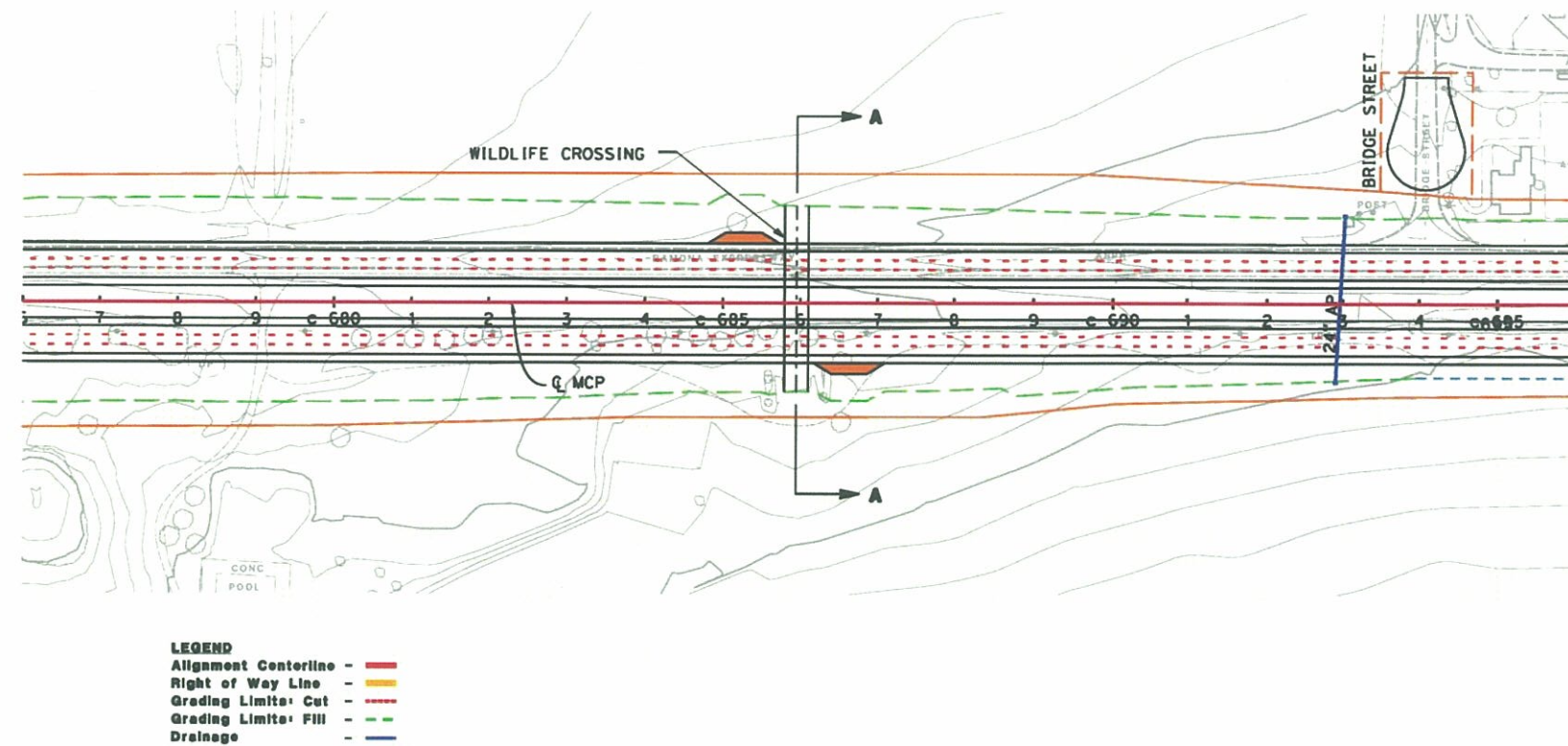
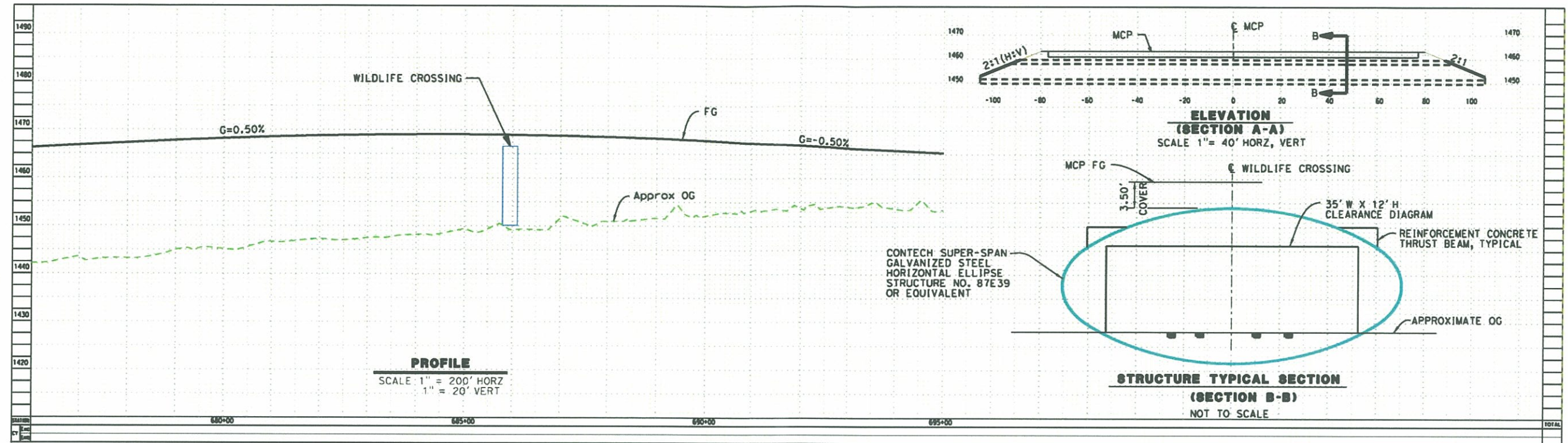
APPENDIX I ATTACHMENT E

Bridges, Culverts and Wildlife Crossings

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 080000125)



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APPENDIX I
ATTACHMENT E



SOURCE: Caltrans

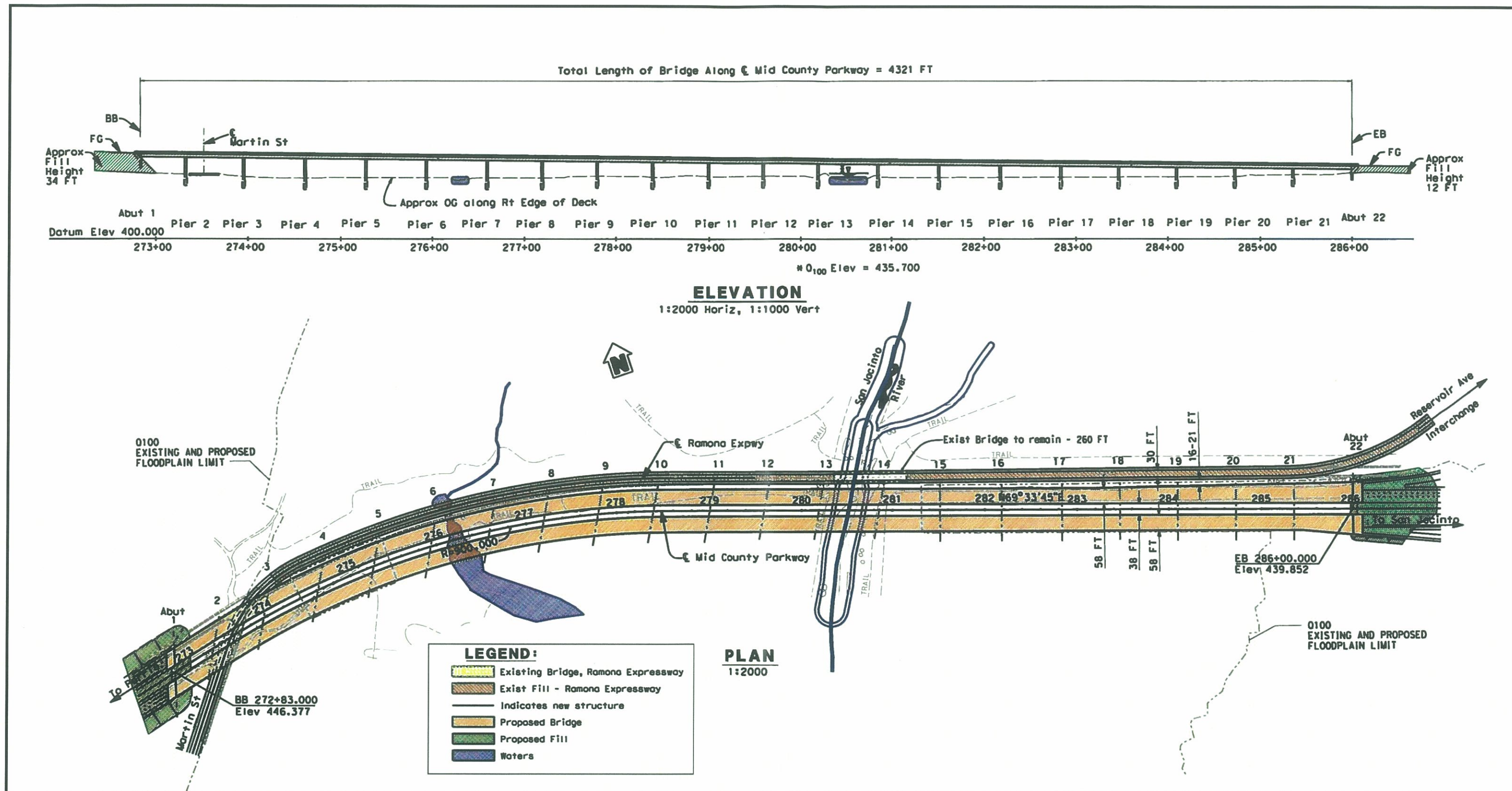
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Wildlife Crossing No. 10

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34/3
EA 08-0F3200 (PN 0800000125)



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APPENDIX I
ATTACHMENT E



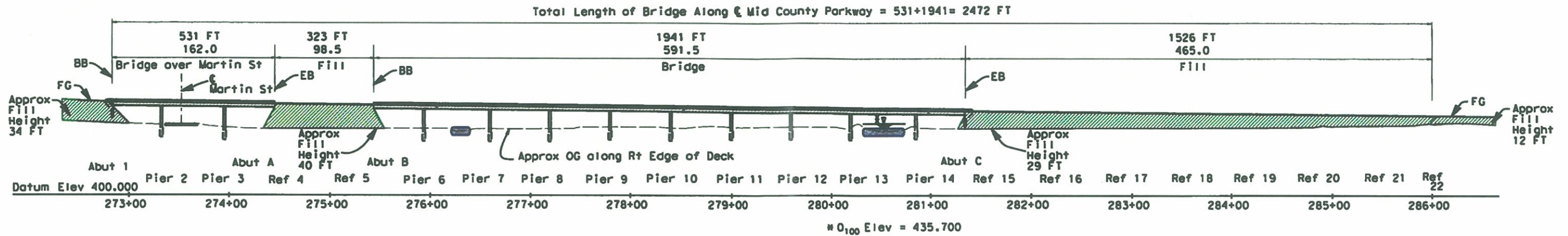
SOURCE: Caltrans

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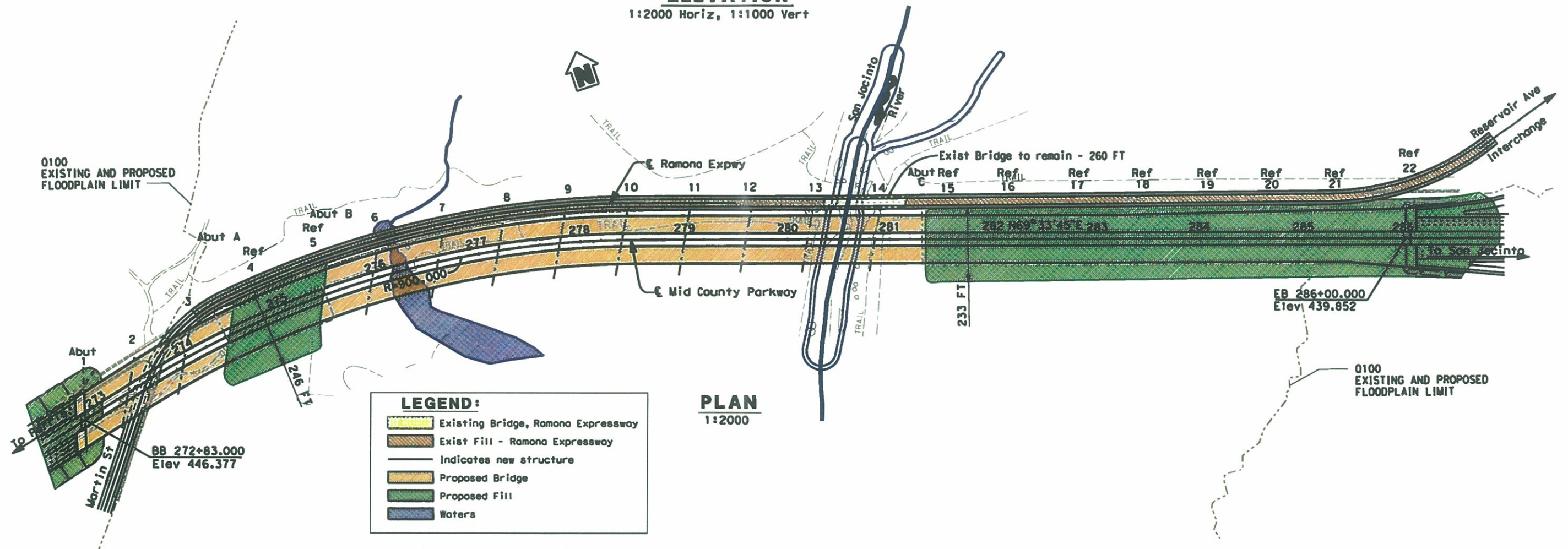
San Jacinto River Bridge Base Case
San Jacinto River/Lakeview Nuevo Bridge (No. 3)

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34/3
EA 08-0F3200 (PN 0800000125)





ELEVATION
1:2000 Horiz, 1:1000 Vert



APPENDIX I
ATTACHMENT E



SOURCE: Caltrans

I:\JVC531\G_Mod\San_Jacinto_Bridge_Variation.cdr (2/4/15)

San Jacinto River Bridge Design Variation
San Jacinto River/Lakeview Nuevo Bridge (No. 12) and Martin Street Bridge (No. 11)
08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34/3
EA 08-0F3200 (PN 0800000125)



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**Attachment F: Bridges and Wildlife Crossings for
All Modified Build Alternatives**

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Attachment F
Mid County Parkway Bridges and Wildlife Crossings for All Modified Build Alternatives

MAP REFERENCE	NAME AND LOCATION Approximate Station	TYPE OF CROSSING	ALT (Modified)	BRIDGE (Opening)			WILDLIFE CROSSING				Openness Ratio (Calculated in feet)
				Length (ft)	Width (ft)	Height (ft)	Length (ft)	Height (ft)	Width (ft)	Area of Opening (ft ²)	
Bridge #3 Right Bridge	San Jacinto River/ Lakeview Nuevo Bridge 461+96.975 to 505+23.033	Bridge	4, 5, 9	62	4,321	24			-	103,704.00	1,672.65
Bridge #3 Left Bridge	San Jacinto River/ Lakeview Nuevo Bridge 461+96.975 to 505+23.033	Bridge	4, 5, 9	62	4,321	24			-	103,704.00	1,672.65
Wildlife Crossing #10	Wildlife Under Crossing Structure 685+95	Wildlife Under Crossing Structure	4, 5, 9	-	-	-	210	10	20	200	0.95
Bridge #11 Right Bridge	DV Martin Street Bridge San Jacinto River/ Lakeview Nuevo Bridge 461+96.975 to 467+27.00	Bridge - Height Range: 28-34' - Design Variation	4, 5, 9	62	531	28			-	15,108.01	243.68
Bridge #11 Left Bridge	DV Martin Street Bridge San Jacinto River/ Lakeview Nuevo Bridge 461+96.975 to 467+27.00	Bridge - Height Range: 28-34' - Design Variation	4, 5, 9	62	531	28			-	15,108.01	243.68
Bridge #12 Right Bridge	DV San Jacinto River/ Lakeview Nuevo Bridge 470+50.00 to 489+91.00	Bridge - Height Range: 17-35' - Design Variation	4, 5, 9	62	1,941	26			-	50,731.92	818.26
Bridge #12 Left Bridge	DV San Jacinto River/ Lakeview Nuevo Bridge 470+50.00 to 489+91.00	Bridge - Height Range: 17-35' - Design Variation	4, 5, 9	62	1,941	26			-	50,731.92	818.26

Notes:

Bridges listed above are in or near existing Western Riverside County MSHCP Conservation Areas or crossing a natural resource.

Bridge numbers correspond to wildlife crossing diagrams and do not correlate with the bridge numbers listed in the separate table regarding avoidance of jurisdictional areas.

Openness ratio = (Area of Opening)/Length. For bridges, assumed "Length" for Openness Ratio calculation is equal to bridge width. With a configuration of two bridges, one for each direction of traffic, there is an open space of 36.0 ft for bridge median which provides lighting between the two bridges.

Target Openness Ratio >1.96 (English) (Foster and Humphrey 1995, Reed et al. 1979).

Unobstructed views through and across crossings; fencing between and at ends to prevent end-runs; jump outs to escape traffic.

Undercrossings conform to documented usage spacing by deer (1.61 - 1.77 km apart; Ford 1980, Ward et al 1980).

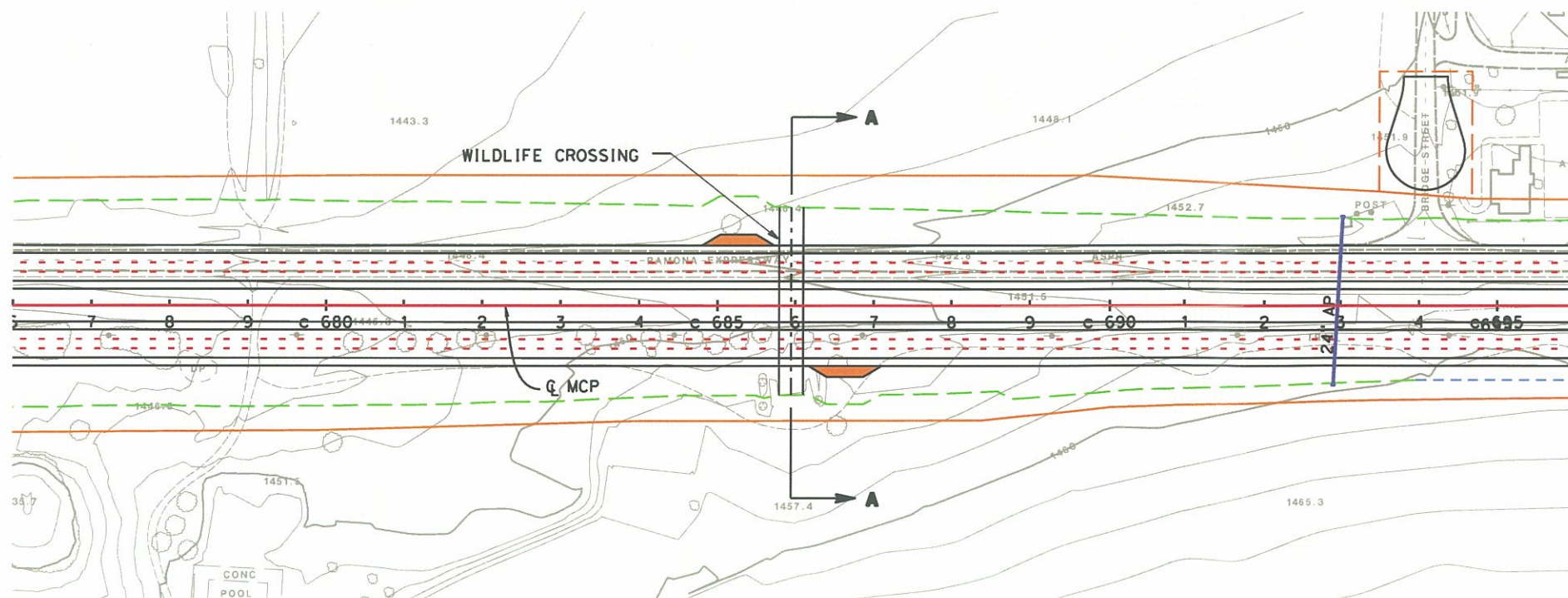
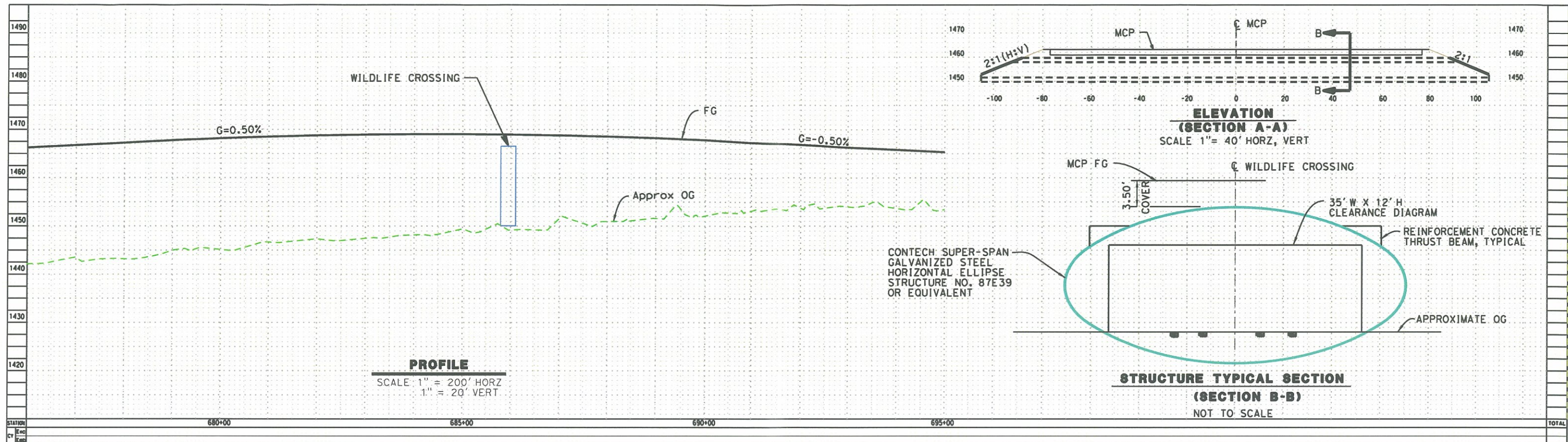
Probability of deer use went from 0 to 1 near 16 feet (Haas and Crooks 1999).

Mountain lion usage of wildlife crossing structures was significantly positively correlated to those used by deer and use underpasses more than overpasses (Gloyne and Clevenger 2001).

Smaller wildlife prefer smaller culverts with smaller openness ratios (Clevenger and Walther 1999).

Bridge #3 Height--Bridge height of opening is between 12-38 ft; average height is 24 ft.

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LEGEND

- Alignment Centerline - —
- Right of Way Line - —
- Grading Limits: Cut - - - -
- Grading Limits: Fill - - - -



MID COUNTY PARKWAY
 WILDLIFE CROSSING
 STA 685+00

SCALE 1" = 200'
 SHEET 2011

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Attachment G: Local Circulation Modifications

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Appendix I, Attachment G: Local Circulation Modifications

Street	Limits	Location	Modification	Alternatives	Other
I-215 & MCP for Alternative 4 Modified (I-215 to West of Antelope)					
West Frontage Road		West of I-215, East of Rail Road and North of Nuevo Road IC	Place cul-de-sac to close off East Frontage Road at I-215 right-of-way line.	Alternative 4 Modified	
West Morgan Street		East of I-215 and south of MCP/ I-215 IC	Place knuckle to close off Morgan Street to Nevada Avenue, but open to East Frontage Road.	Alternative 4 Modified	
East Frontage Road	From West Walnut Street to Water Avenue	East of I-215 at Placentia Avenue IC	Realign Frontage Road to provide standard intersection spacing at Placentia Avenue/ East Frontage Road intersection.	Alternative 4 Modified	
	From West Walnut Street to West Morgan Street	East of I-215/south of MCP	Realign Frontage Road to provide standard Outer Separation.	Alternative 4 Modified	
Susan Lane		East of Frontage Road and north of Placentia Avenue	Place cul-de-sac to close off Susan Lane at MCP right-of-way line.	Alternative 4 Modified	
Wade Avenue	From Markham Street to Oleander Avenue	East of I-215, South Oleander Avenue	Realign Wade Avenue to provide access to local streets.	Alternative 4 Modified	
Indian Avenue	From West Perry Street to Ramona Expressway	West of Barrett Avenue and north of MCP	Place T-intersection at Indian Avenue and West Perry Street to close off Indian Avenue South of West Perry Street.	Alternative 4 Modified	
	From West Perry Street to Ramona Expressway	West of Barrett Avenue and south of MCP	Place cul-de-sac to close off Indian Avenue at MCP right-of-way line.	Alternative 4 Modified	
West Perry Street	East of Indian Avenue to Barrett Avenue	North of MCP near Perris IC	Realign to new Indian Avenue to allow access to local streets.	Alternative 4 Modified	
Barrett Avenue	From West Perry Street to Ramona Expressway	West of Perris Boulevard and south of MCP	Place cul-de-sac to close off Barrett Avenue at MCP right-of-way line.	Alternative 4 Modified	
Street A	Indian Avenue to Perris Boulevard	North of Ramona Expressway and south of MCP	Close off Street A at MCP right-of-way line.	Alternative 4 Modified	Dirt Road
Toliver Road		East of Evans Road IC and south of MCP	Place cul-de-sac to close off Toliver Road at MCP right-of-way line.	Alternative 4 Modified	
El Nido Avenue		East of Evans Road IC and north of MCP	Place cul-de-sac to close off El Nido Avenue at MCP right-of-way line.	Alternative 4 Modified	
		East of Evans Road IC and south of MCP	Place cul-de-sac to close off El Nido Avenue at MCP right-of-way line.	Alternative 4 Modified	
Eureka Street		East of El Nido Avenue and north of MCP	Close off Eureka Street at MCP right-of-way line.	Alternative 4 Modified	Dirt Road
		East of El Nido Avenue and south of MCP	Close off Eureka Street at MCP right-of-way line.	Alternative 4 Modified	Dirt Road
Evans Road		North of Evans Road/ MCP IC	Place cul-de-sac to close off Old Evans Road at MCP right-of-way line.	Alternative 4 Modified	

Appendix I, Attachment G: Local Circulation Modifications

Street	Limits	Location	Modification	Alternatives	Other
Russo Road		West of Evans Road and south of MCP	Close off Eureka Street at MCP right-of-way line.	Alternative 4 Modified	Dirt Road
I-215 & MCP for Alternative 5 Modified (I-215 to West of Antelope)					
West Frontage Road		West of I-215, east of Rail Road and north of Nuevo Road	Place cul-de-sac to close off East Frontage Road at I-215 right-of-way line.	Alternative 5 Modified	
East Frontage Road	From West Walnut Street to Water Avenue	East of I-215 and south of MCP	Place cul-de-sac to close off East Frontage Road at MCP right-of-way line.	Alternative 5 Modified	
	From West Walnut Street to Water Avenue	East of I-215 and south of MCP	Realign Frontage Road, to provide standard intersection spacing at Placentia Avenue/East Frontage Road.	Alternative 5 Modified	
Susan Lane		East of Frontage Road and north of Placentia Avenue	Place cul-de-sac to close off Susan Lane at MCP right-of-way line.	Alternative 5 Modified	
Wade Avenue	From Markham Street to Oleander Avenue	East of I-215, South Oleander Avenue	Realign Wade Avenue to provide access to local streets.	Alternative 5 Modified	
North Webster Avenue		East of I-215 and north of MCP	Place cul-de-sac to close off Webster Avenue at MCP right-of-way line.	Alternative 5 Modified	
East Rider Street		West of Perris Boulevard IC, south of MCP	Place cul-de-sac to close off Rider Street at MCP right-of-way line.	Alternative 5 Modified	
		East of Perris Boulevard IC, north of MCP	Place cul-de-sac to close off Rider Street at MCP right-of-way line.	Alternative 5 Modified	
		East of I-215 and south of MCP	Place cul-de-sac to close off Rider Street at MCP right-of-way line.	Alternative 5 Modified	
Sinclair Street		West of Perris Boulevard IC, north of MCP	Move the Sinclair Street/Perris Boulevard intersection to the north.	Alternative 5 Modified	Access Road
		East of Perris Boulevard IC, north of MCP	Place cul-de-sac to close off Sinclair Street at MCP right-of-way line.	Alternative 5 Modified	
Placentia Avenue	Placentia Avenue/ Murrieta Road intersection	South of MCP, at Murrieta Road	Place a knuckle at Placentia Avenue and Murrieta Road intersection.	Alternative 5 Modified	
Toliver Road		East of Evans Road IC and south of MCP	Place cul-de-sac to close off Toliver Road at MCP right-of-way line.	Alternative 5 Modified	
		West of Evans Road IC and south of MCP	Place cul-de-sac to close off Toliver Road at MCP right-of-way line.	Alternative 5 Modified	
El Nido Avenue		East of Evans Road IC and north of MCP	Place cul-de-sac to close off El Nido Avenue at MCP right-of-way line.	Alternative 5 Modified	
		East of Evans Road IC and south of MCP	Place cul-de-sac to close off El Nido Avenue at MCP right-of-way line.	Alternative 5 Modified	
Eureka Street		East of El Nido Avenue and north of MCP	Close off Eureka Street at MCP right-of-way line.	Alternative 5 Modified	Dirt Road
		East of El Nido Avenue and south of MCP	Close off Eureka Street at MCP right-of-way line.	Alternative 5 Modified	Dirt Road

Appendix I, Attachment G: Local Circulation Modifications

Street	Limits	Location	Modification	Alternatives	Other
Evans Road		East of Evans Road IC, north of MCP	Place cul-de-sac to close off Old Evans Road at MCP right-of-way line.	Alternative 5 Modified	
Russo Road		West of Evans Road IC and south of MCP	Close off Russo Road at MCP right-of-way line.	Alternative 5 Modified	Dirt Road
I-215 & MCP for Alternative 9 Modified (I-215 to West of Antelope)					
East Frontage Road	From Placentia Avenue to Walnut Street	East of I-215 and north of MCP	Realign East Frontage Road to provide standard spacing at Placentia Avenue/East Frontage Road intersection.	Alternative 9 Modified	
	From Walnut Street to West Morgan Street	East of I-215 and north of Walnut Street	Realign East Frontage Road to provide access to local streets.	Alternative 9 Modified	
	From South of Orange Avenue to North of Orange Avenue	East of I-215 south of MCP	Realign East Frontage Road to provide access to local streets.	Alternative 9 Modified	
Water Avenue		East of I-215 and south of MCP	Place knuckle at East Frontage Road/Water Avenue intersection.	Alternative 9 Modified	
Nevada Avenue	From North of West Morgan Street to South of Markham Street	East of Ramona Expressway/I-215 IC	Realign Nevada Avenue to provide standard spacing at Ramona Expressway/Nevada Avenue intersection.	Alternative 9 Modified	
West Frontage Road		West of I-215, east of Rail Road, and north of Nuevo Road	Place cul-de-sac to close off West Frontage Road at I-215 right-of-way line.	Alternative 9 Modified	
		West of I-215, east of Rail Road, and north of Placentia Avenue	Place cul-de-sac to close off West Frontage Road at I-215 right-of-way line.	Alternative 9 Modified	
		West of I-215, east of Rail Road, and south of Placentia Avenue	Place cul-de-sac to close off West Frontage Road at I-215 right-of-way line.	Alternative 9 Modified	
Susan Lane		East of Frontage Road and north of MCP	Place cul-de-sac to close off Susan Lane at MCP right-of-way line.	Alternative 9 Modified	
Barrett Avenue		West of Perris Boulevard, south of MCP	Place cul-de-sac to close off Barrett Avenue at MCP right-of-way line.	Alternative 9 Modified	
		West of Perris Boulevard, north of MCP	Place T-intersection to close off Barrett Avenue.	Alternative 9 Modified	
Wilson Avenue		East of Redlands Avenue, north of MCP	Place cul-de-sac to close off Wilson Avenue at MCP right-of-way line.	Alternative 9 Modified	
		East of Redlands Avenue, south of MCP	Place cul-de-sac to close off Wilson Avenue at MCP right-of-way line.	Alternative 9 Modified	
Placentia Avenue		West of Evans Road IC and south of MCP	Place knuckle at Placentia Avenue/ Russo Road intersection.	Alternative 9 Modified	Dirt Road
		East of Evans Road, south of MCP	Place cul-de-sac to close off Placentia Avenue at MCP right-of-way line.	Alternative 9 Modified	Dirt Road

Appendix I, Attachment G: Local Circulation Modifications

Street	Limits	Location	Modification	Alternatives	Other
El Nido Avenue		East of Evans Road IC and north of MCP	Place cul-de-sac to close off El Nido Avenue at MCP right-of-way line.	Alternative 9 Modified	
		East of Evans Road IC and south of MCP	Place T-intersection at Placentia Avenue and El Nido Avenue at MCP right-of-way line.	Alternative 9 Modified	
Eureka Street		East of El Nido Avenue and north of MCP	Close off Eureka Street at MCP right-of-way line.	Alternative 9 Modified	Dirt Road
		East of El Nido Avenue and south of MCP	Place T-intersection to close off Eureka Street at Placentia Avenue/ Eureka Street intersection.	Alternative 9 Modified	Dirt Road
Evans Road		East of Evans Road IC, north of MCP	Place cul-de-sac to close off Old Evans Road at MCP right-of-way line.	Alternative 9 Modified	
Sparkler Lane		East of Perris Boulevard and north of MCP	Extend Sparkler Lane to connect to Voyager Lane. Place cul-de-sac to close off Sparkler Lane at MCP right-of-way line.	Alternative 9 Modified	
Gailed Place		East of Perris Boulevard and north of MCP	Place knuckle at Gailed Place/Magellan Lane intersection to close off Gailed Place	Alternative 9 Modified	
Lake View Drive		West of MCP/ Redlands Avenue IC and north of MCP	Place knuckle at Lake View Drive/ Holiday Lane intersection to close off Lake View Drive.	Alternative 9 Modified	
		West of MCP/ Redlands Avenue IC and south of MCP	Place cul-de-sac to close off Lake View Drive at MCP right-of-way line.	Alternative 9 Modified	
Jubilee Court		West of MCP/ Redlands Avenue IC and south of MCP	Realign and extend Jubilee Court to provide access to Spokane Street.	Alternative 9 Modified	
MCP from West of Antelope to West of Warren for San Jacinto <u>South Alignment</u> Alternative (Base Case)					
Pico Avenue		East of Antelope Road IC, south of MCP	Place knuckle at Pico Ave/Rider St intersection to close off Pico Ave	All Build Alternatives	
Rider Street		East of Antelope Road IC, south of MCP	Realign Rider Street to the south and reconnect to Pico Avenue with a knuckle	All Build Alternatives	
Bernasconi Road		East of Bernasconi Road IC, north of MCP	Place cul-de-sac to close off Bernasconi Road, 200' north of MCP right-of-way line.	All Build Alternatives	
Martin Street		East of Bernasconi Road IC, south of MCP	Place cul-de-sac to close off Martin Street at MCP right-of-way line.	All Build Alternatives	
Davis Street		East of Reservoir Road IC, north of MCP	Place cul-de-sac to close off Davis Street at MCP right-of-way line.	All Build Alternatives	
Sixth Street		West of Town Center Boulevard IC, south of MCP	Place cul-de-sac to close off Sixth Street at MCP right-of-way line.	All Build Alternatives	

Appendix I, Attachment G: Local Circulation Modifications

Street	Limits	Location	Modification	Alternatives	Other
Drive Way		East of Town Center Boulevard IC, north of MCP	Place cul-de-sac to close off Drive Way at MCP right-of-way line.	All Build Alternatives	
Fifth Street		East of Town Center Boulevard IC, south of MCP	Place cul-de-sac to close off Fifth Street at MCP right-of-way line.	All Build Alternatives	
Fourth Street		East of Fifth Street, north of MCP	Place cul-de-sac to close off Fourth Street at MCP right-of-way line.	All Build Alternatives	Access road
Reservoir Road		West of Park Center Boulevard IC, south of MCP	Close off Reservoir Road at MCP right-of-way line.	All Build Alternatives	Dirt Road
		West of Park Center Boulevard IC, north of MCP	Place cul-de-sac to close off Reservoir Road at MCP right-of-way line.	All Build Alternatives	Access Road
First Street		East of Park Center Boulevard IC, north of MCP	Close off First Street at MCP right-of-way line.	All Build Alternatives	Dirt Road
		East of Park Center Boulevard IC, south of MCP	Close off First Street at MCP right-of-way line.	All Build Alternatives	Dirt Road
Second Street		East of First Street, north of MCP	Close off Second Street at MCP right-of-way line.	All Build Alternatives	Dirt Road
Bridge Street		East of Second Street, north of MCP	Place cul-de-sac to close off Bridge Street at MCP right-of-way line.	All Build Alternatives	
Unknown		East of Bridge Street, north of MCP	Place cul-de-sac to close off Unknown Street at MCP right-of-way line.	All Build Alternatives	Access Road
Princess Ann Road		West of Pico Road, north of MCP	Close off Pico Road at MCP right-of-way line.	All Build Alternatives	Dirt Road
Pico Road		East of Bridge Street, north of MCP	Close off Pico Road at MCP right-of-way line.	All Build Alternatives	Dirt Road
MCP & SR-79 Base Case (West of Warren to SR-79)					
Sanderson Avenue		West of SR-79, south of Ramona Expressway	Realign Sanderson Avenue to the west for it to go straight toward north.	DVSR79	
Ramona Expressway		East of Warren, north of MCP	Realign Ramona Expressway to the north to provide intersection spacing at the Ramona Expressway/Warren intersection.	DVSR79	
SR-79 for San Jacinto North Alternative					
Sanderson Avenue		West of SR-79, south of Ramona Expressway	Realign Sanderson Avenue to the west for it to go straight toward north.	All Build Alternatives	
Ramona Boulevard		East of SR-79, south of MCP	Place cul-de-sac to close off Ramona Boulevard at MCP right-of-way line.	All Build Alternatives	
Ramona Expressway	West of Warren Road to east of SR-79	West of Warren Road and south of MCP	Realign Ramona Expressway to the North to merge in with MCP.	All Build Alternatives	
		West of Warren Road and south of MCP	Place cul-de-sac to close off Ramona Expressway at MCP right-of-way line.	All Build Alternatives	

Appendix I, Attachment G: Local Circulation Modifications

Street	Limits	Location	Modification	Alternatives	Other
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Source: Appendix D from the Addendum to the Community Impact Assessment (LSA Associates, 2011) and Jacobs Engineering (July 2014).

I-215 = Interstate 215

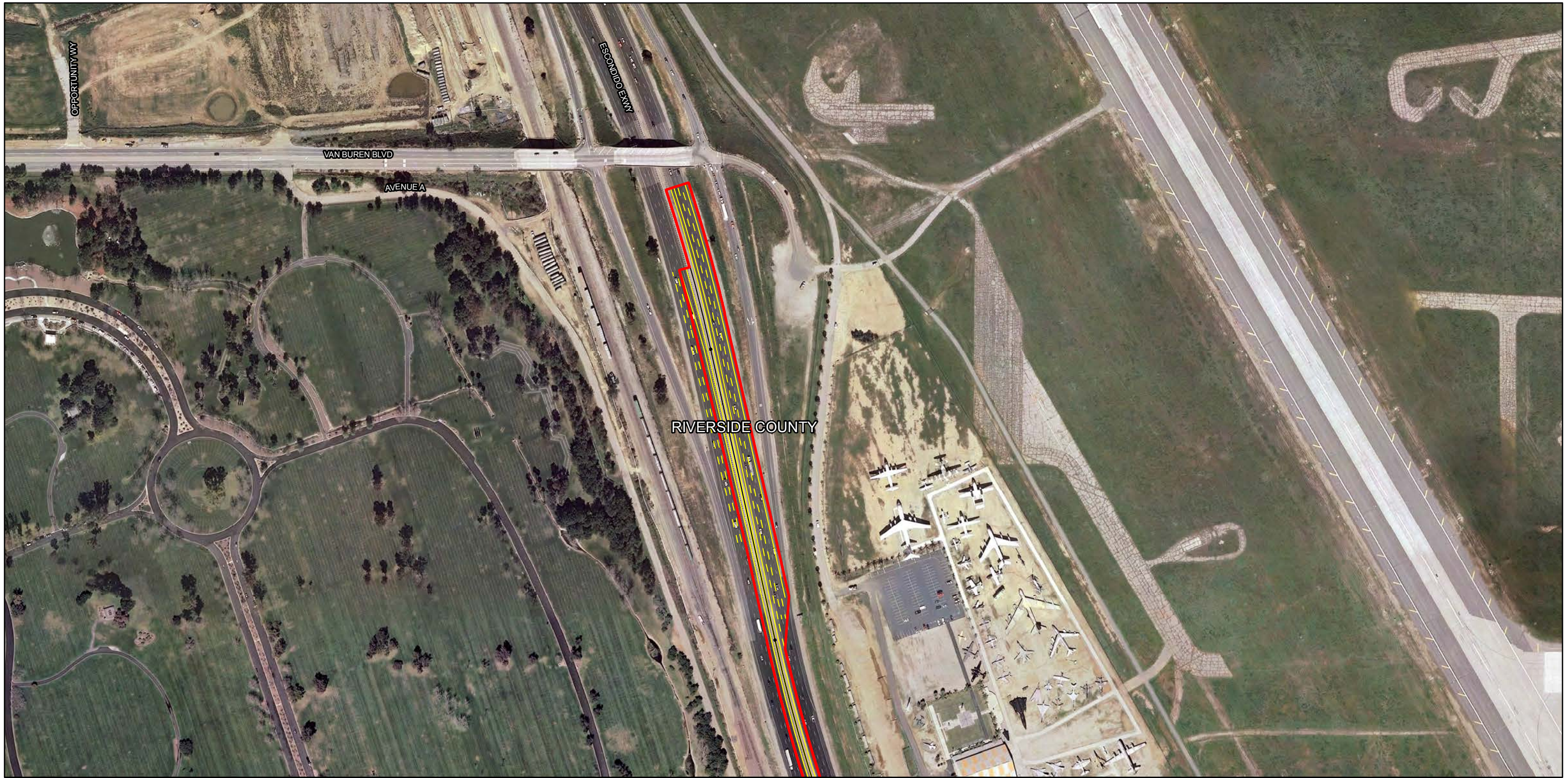
IC = interchange

MCP = Mid County Parkway

SR-79 = State Route 79

**Attachment H: Conceptual Plan of the Preferred Alternative (Alternative 9
Modified with the San Jacinto River Bridge Design Variation)**

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LEGEND

- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)



0 175 350 Feet

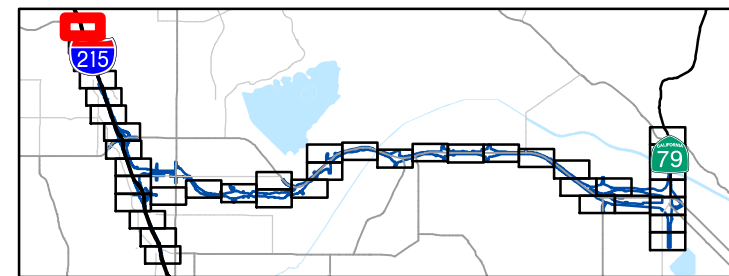
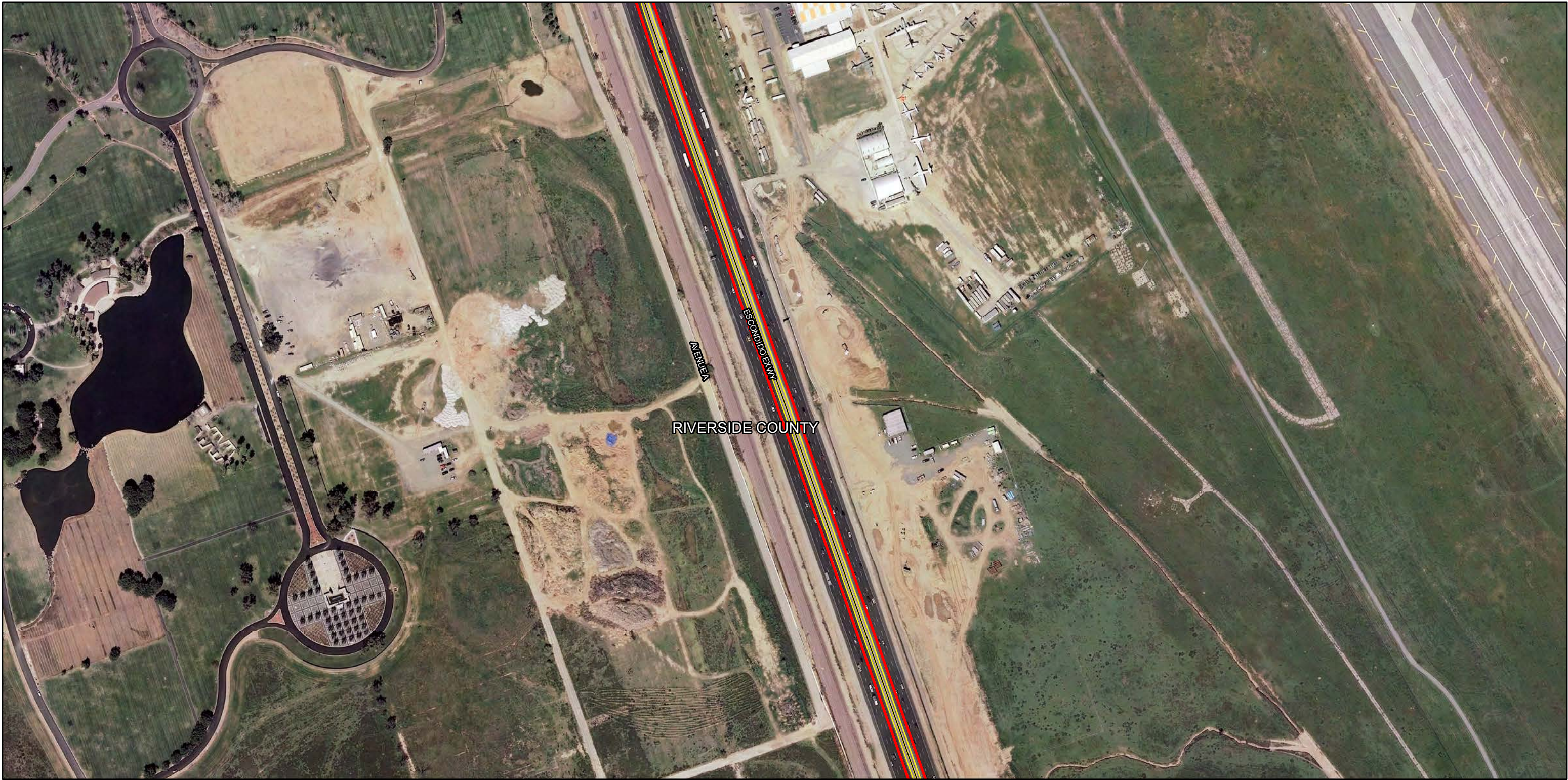


FIGURE H-1
Page 1 of 40

Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

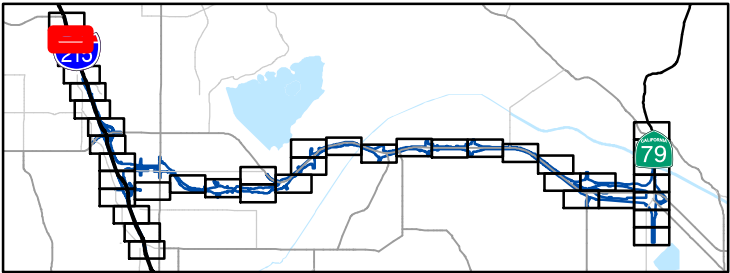
















FIGURE H-1
Page 2 of 40

Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|--|---|---|
|  Limits of Proposed Improvements for Preferred Alternative |  Retaining Wall |  Wildlife Crossing |
|  Bridge Placement |  Construction Easement |  Dry Culvert Crossing (approximate location) |
|  Existing Bridge |  Utility Easement |  BMP |
|  Alternative 9 SJRB Roadway Linework |  Cut Line |  Proposed Drainage |
| |  Fill Line |  City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

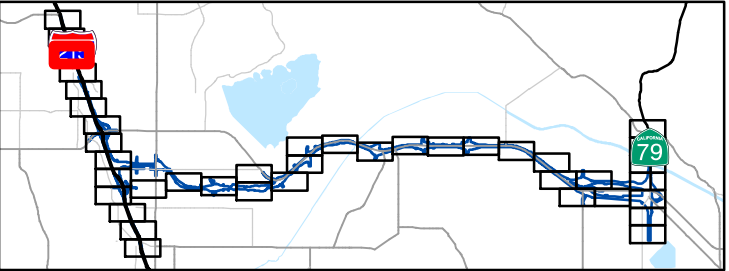
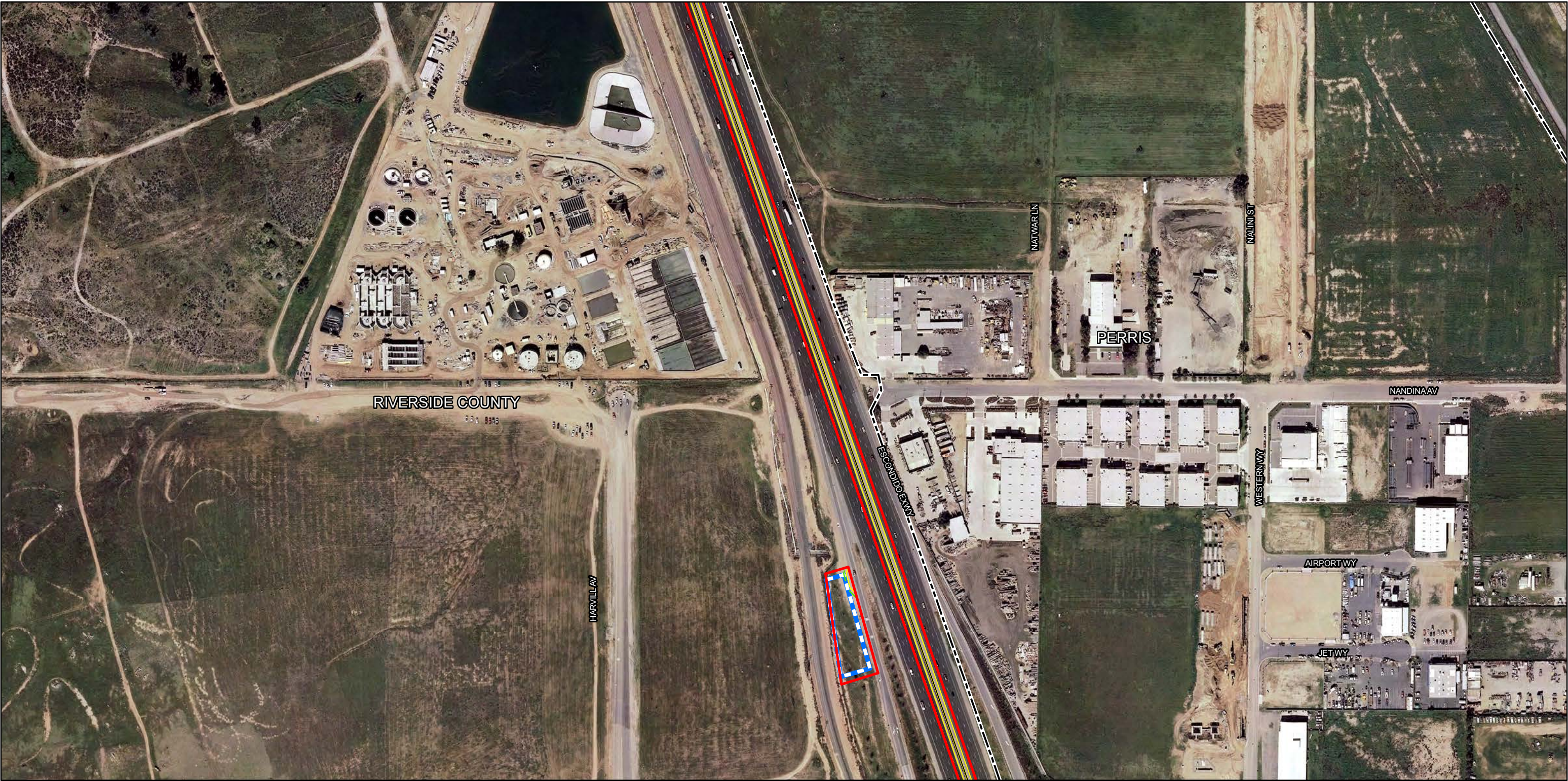


FIGURE H-1
Page 3 of 40

Alternative 9 Modified San Jacinto River Bridge Design Variation

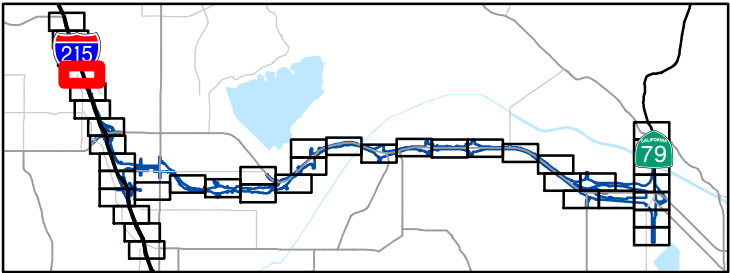
08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

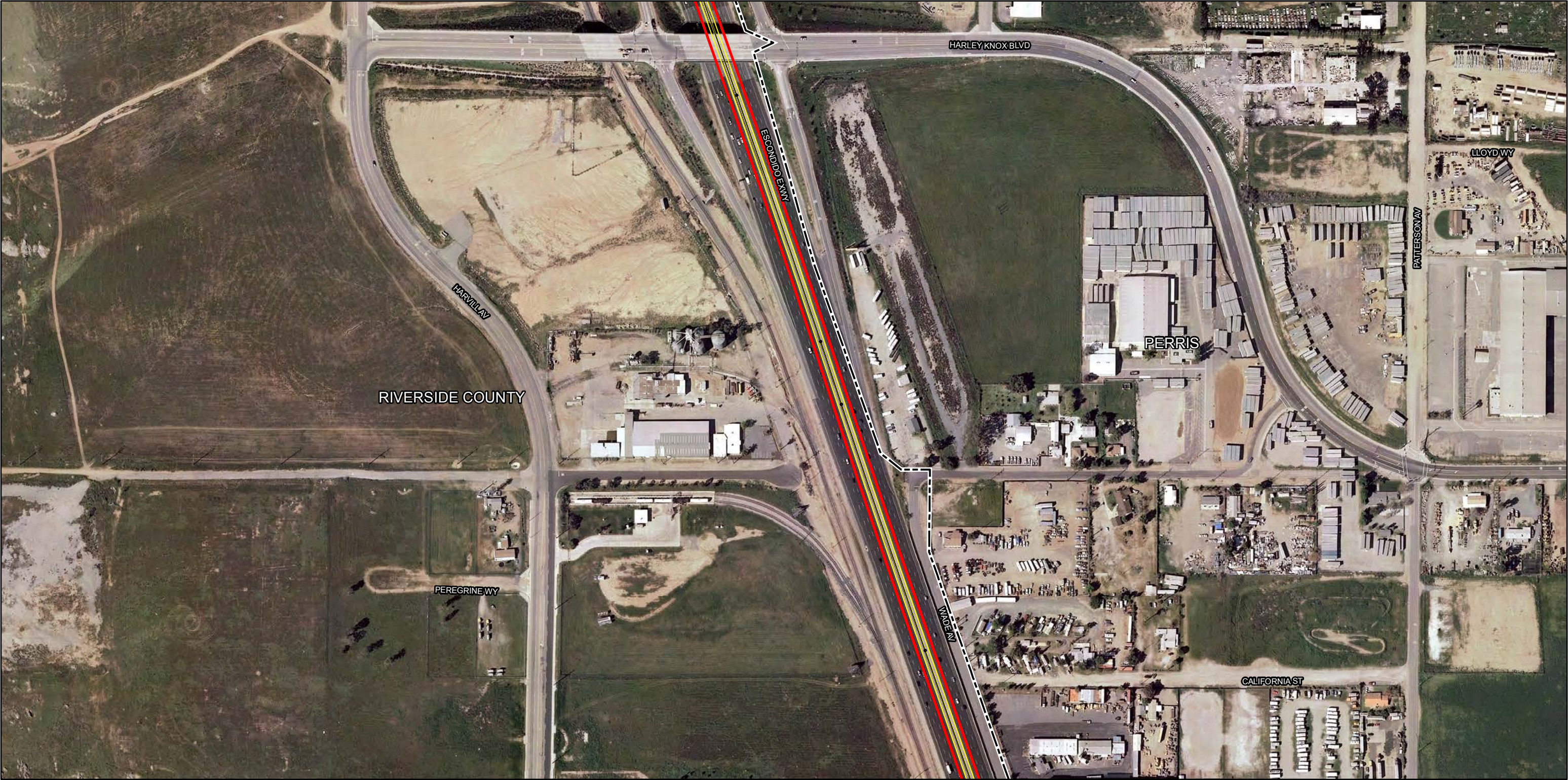


Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)



FIGURE H-1
Page 4 of 40



LEGEND

Limits of Proposed Improvements for Preferred Alternative

Bridge Placement

Existing Bridge

Alternative 9 SJRB Roadway Linework

Retaining Wall

Construction Easement

Utility Easement

Cut Line

Fill Line

Wildlife Crossing

Dry Culvert Crossing (approximate location)

BMP

Proposed Drainage

City Limits

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

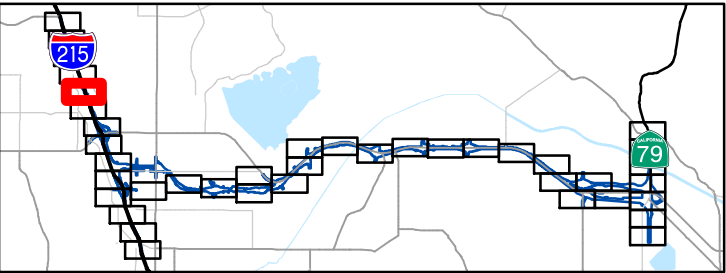
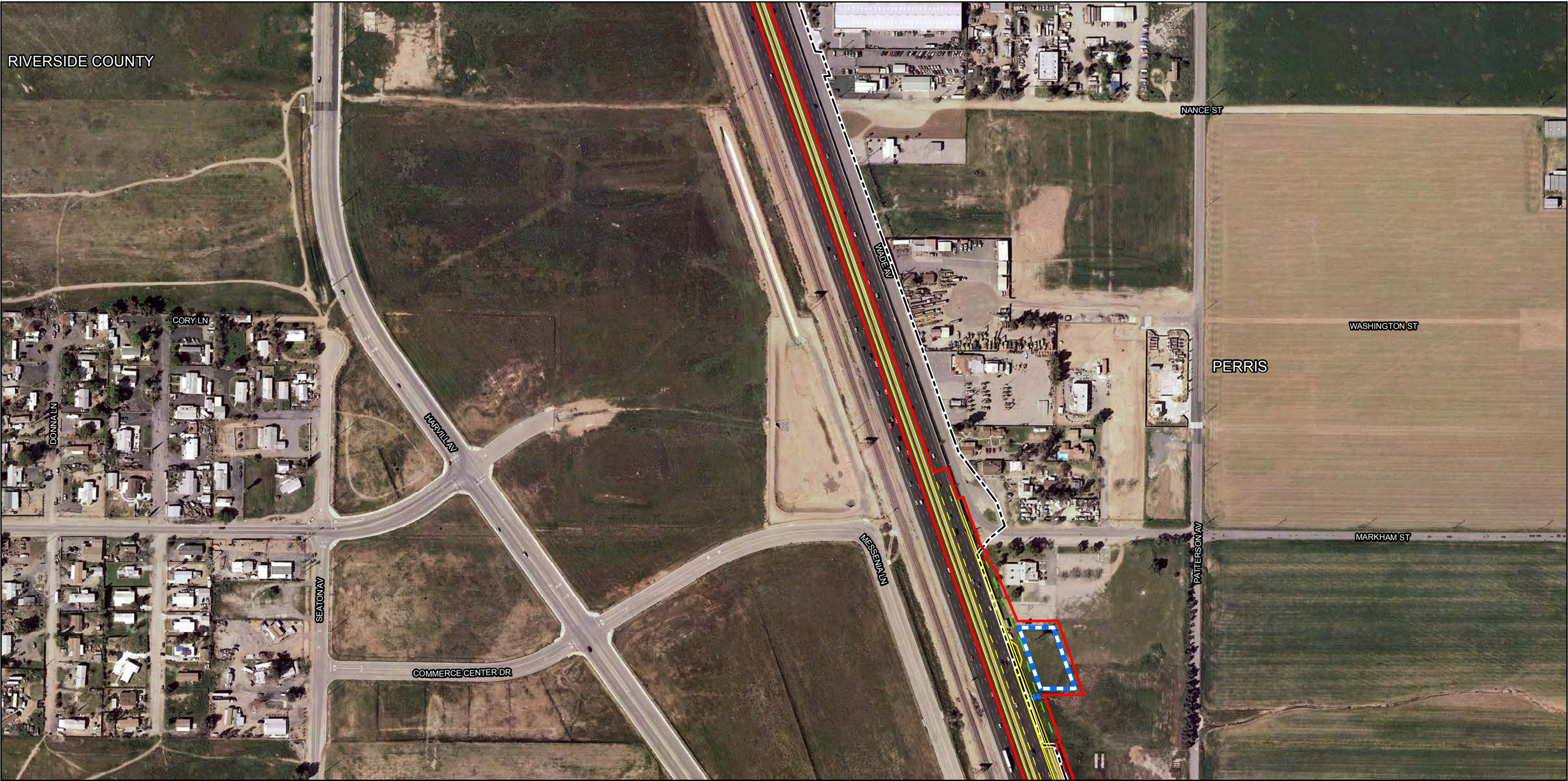


FIGURE H-1
Page 5 of 40

Alternative 9 Modified San Jacinto River Bridge Design Variation

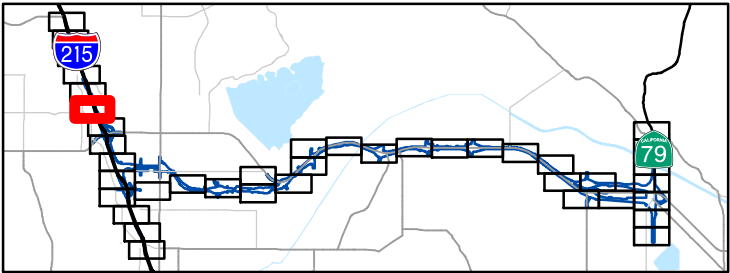
08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|---|---|--|
| Limits of Proposed Improvements for Preferred Alternative | — Retaining Wall | - - - Wildlife Crossing |
| Bridge Placement | - - - Construction Easement | - - - Dry Culvert Crossing (approximate location) |
| Existing Bridge | — Utility Easement | BMP |
| — Alternative 9 SJRB Roadway Linework | - - - Cut Line | - - - Proposed Drainage |
| | - - - Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

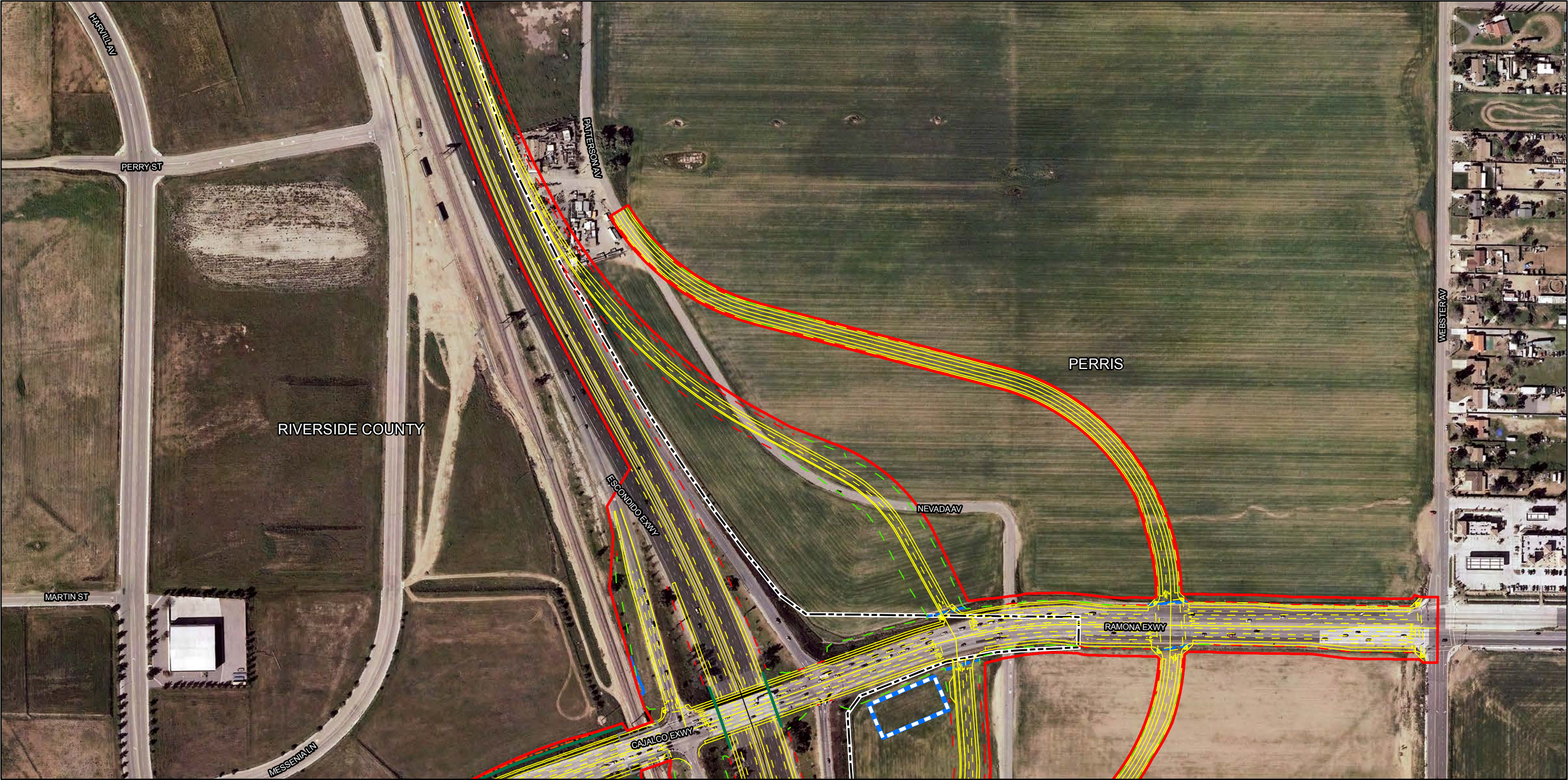


Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

FIGURE H-1
Page 6 of 40





- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

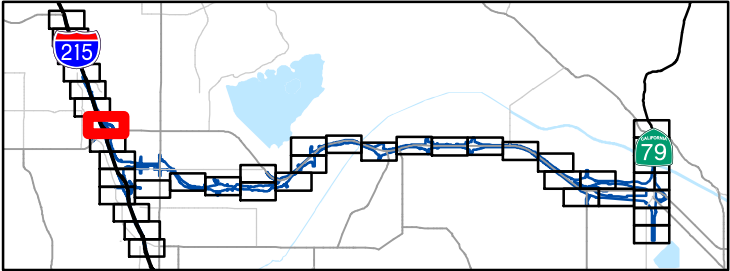
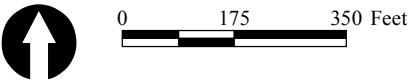


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

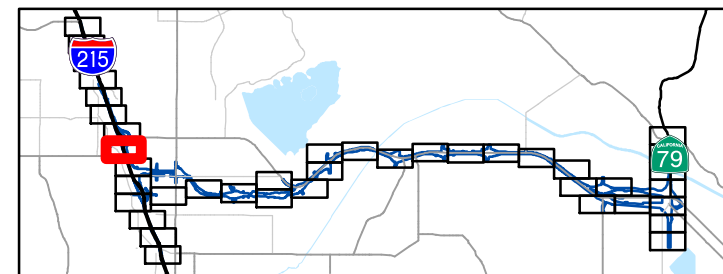
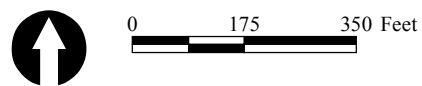
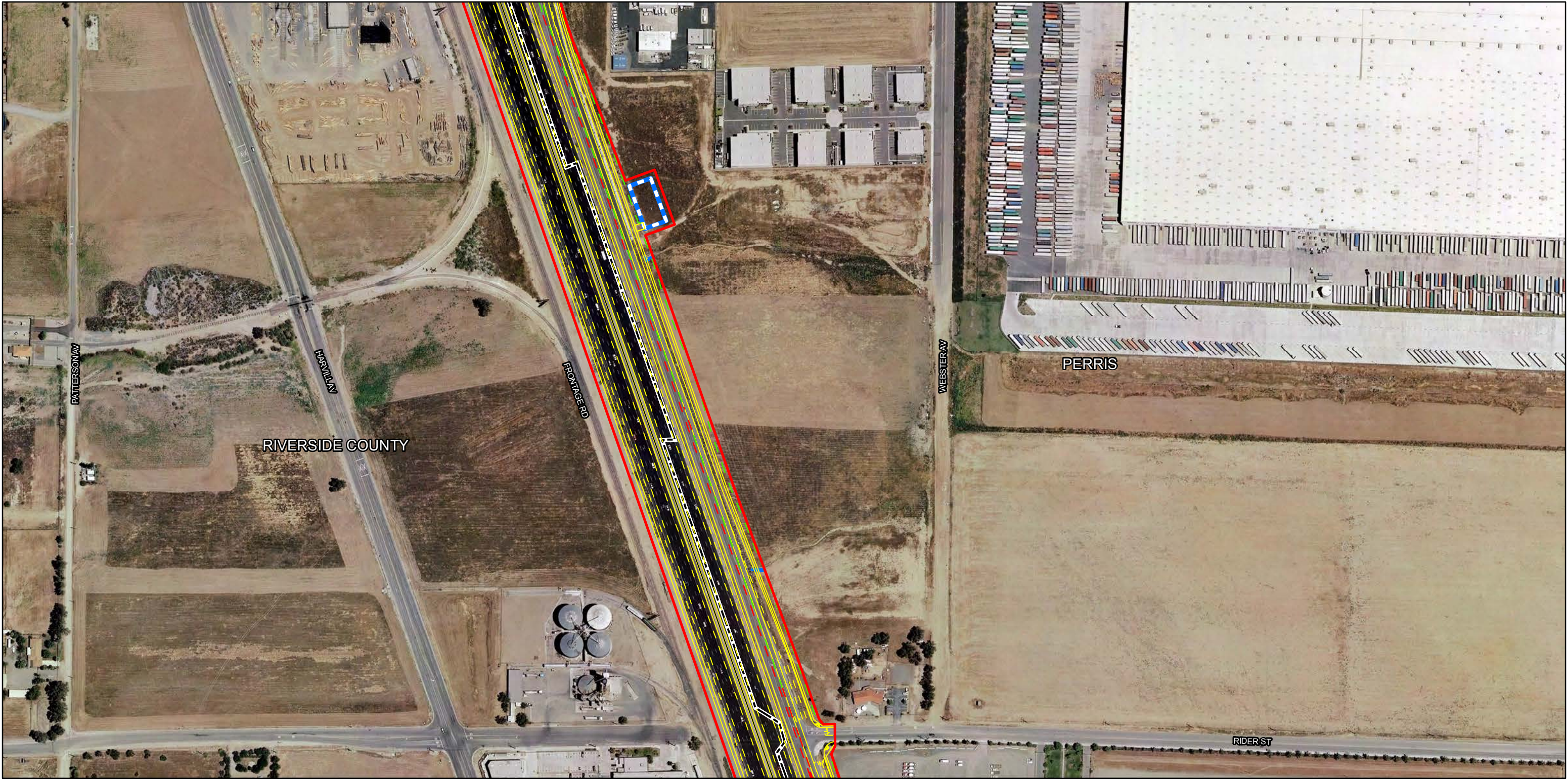


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 080000125)





LEGEND

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|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

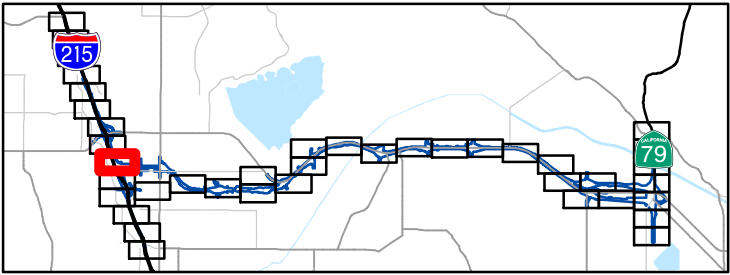
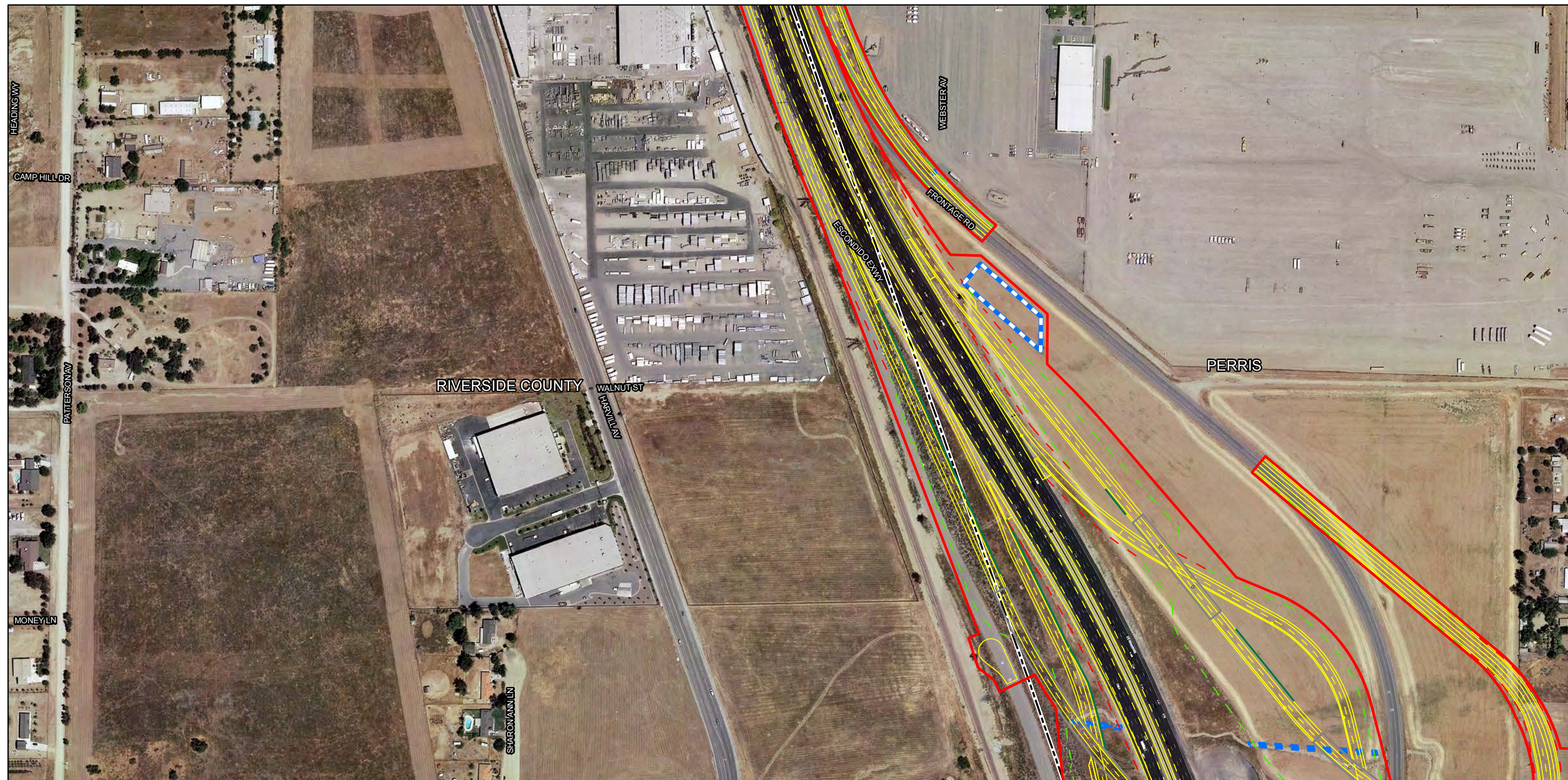


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
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|---|---|--|
| Limits of Proposed Improvements for Preferred Alternative | — Retaining Wall | - - - Wildlife Crossing |
| Bridge Placement | - - - Construction Easement | - - - Dry Culvert Crossing (approximate location) |
| Existing Bridge | — Utility Easement | BMP |
| — Alternative 9 SJRB Roadway Linework | - - - Cut Line | - - - Proposed Drainage |
| | - - - Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

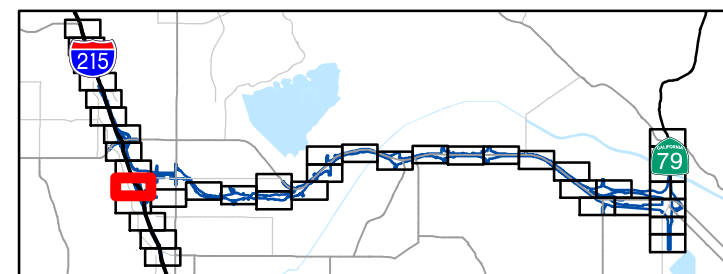
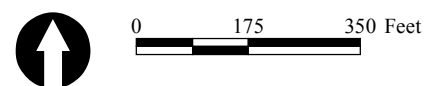
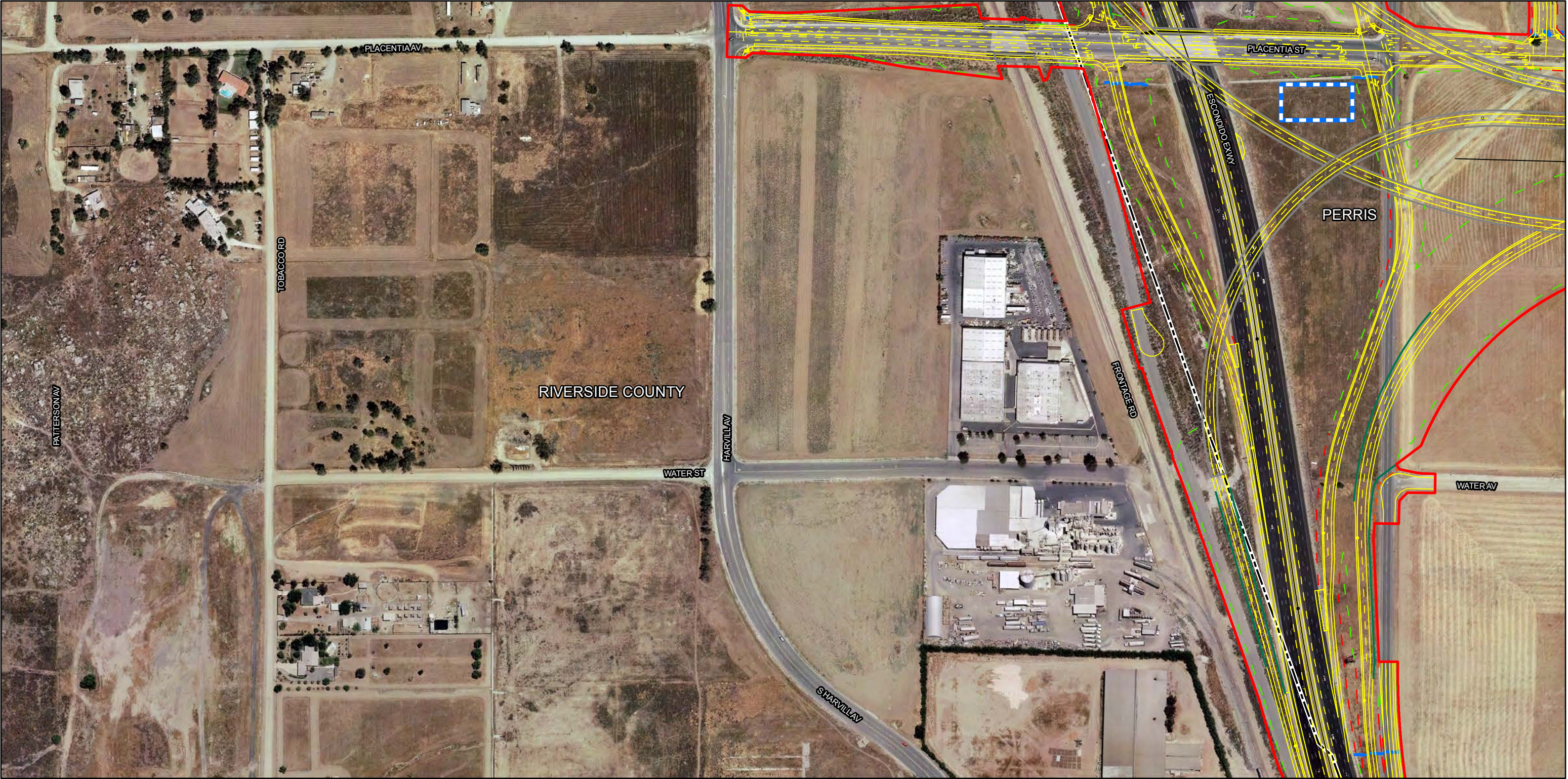


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

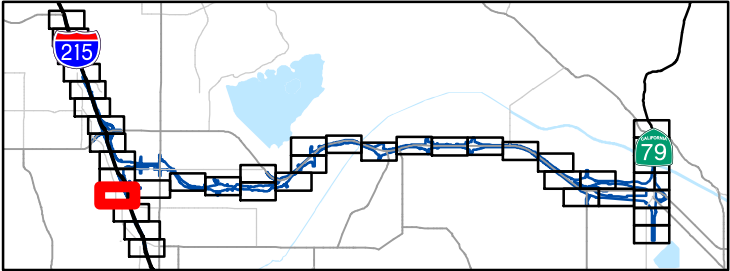
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EA 08-0F3200 (PN 0800000125)





- LEGEND
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|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)



Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)



FIGURE H-1
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- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

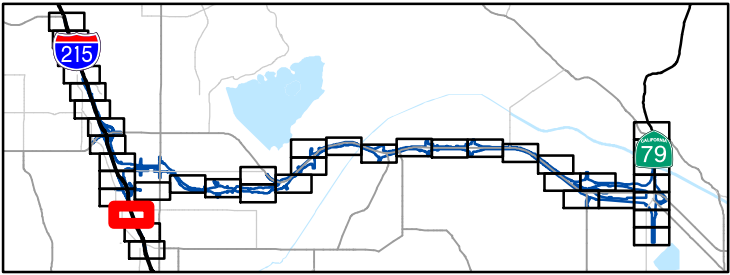
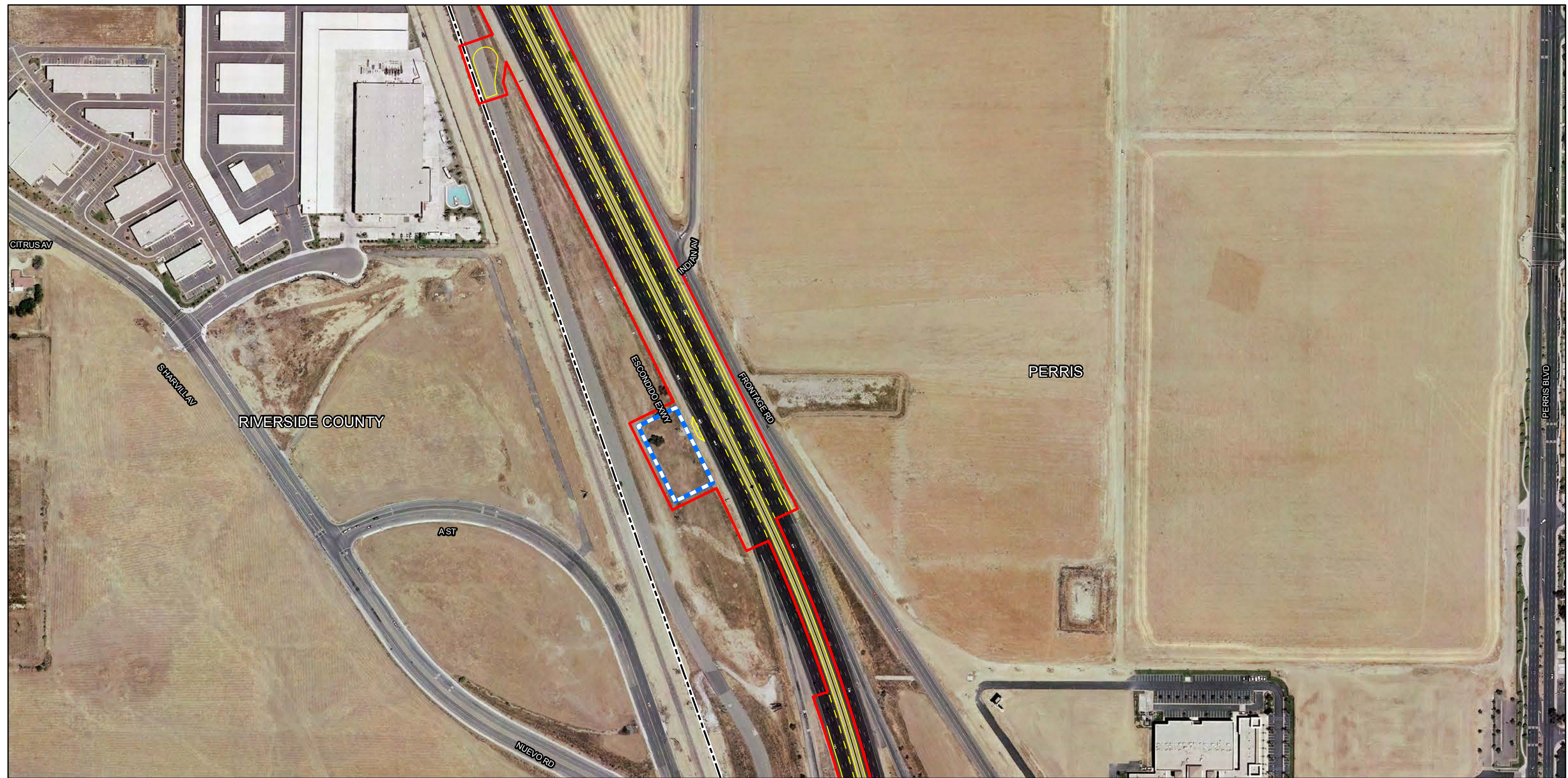


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-OF3200 (PN 0800000125)





LEGEND

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|--|---|--|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

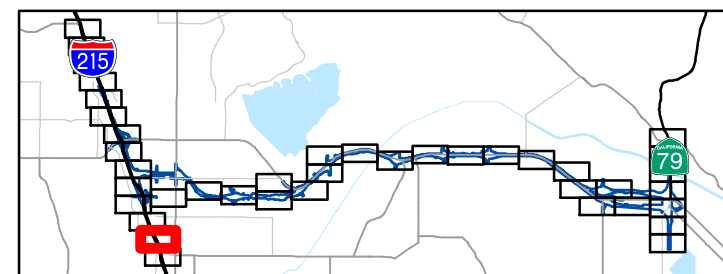
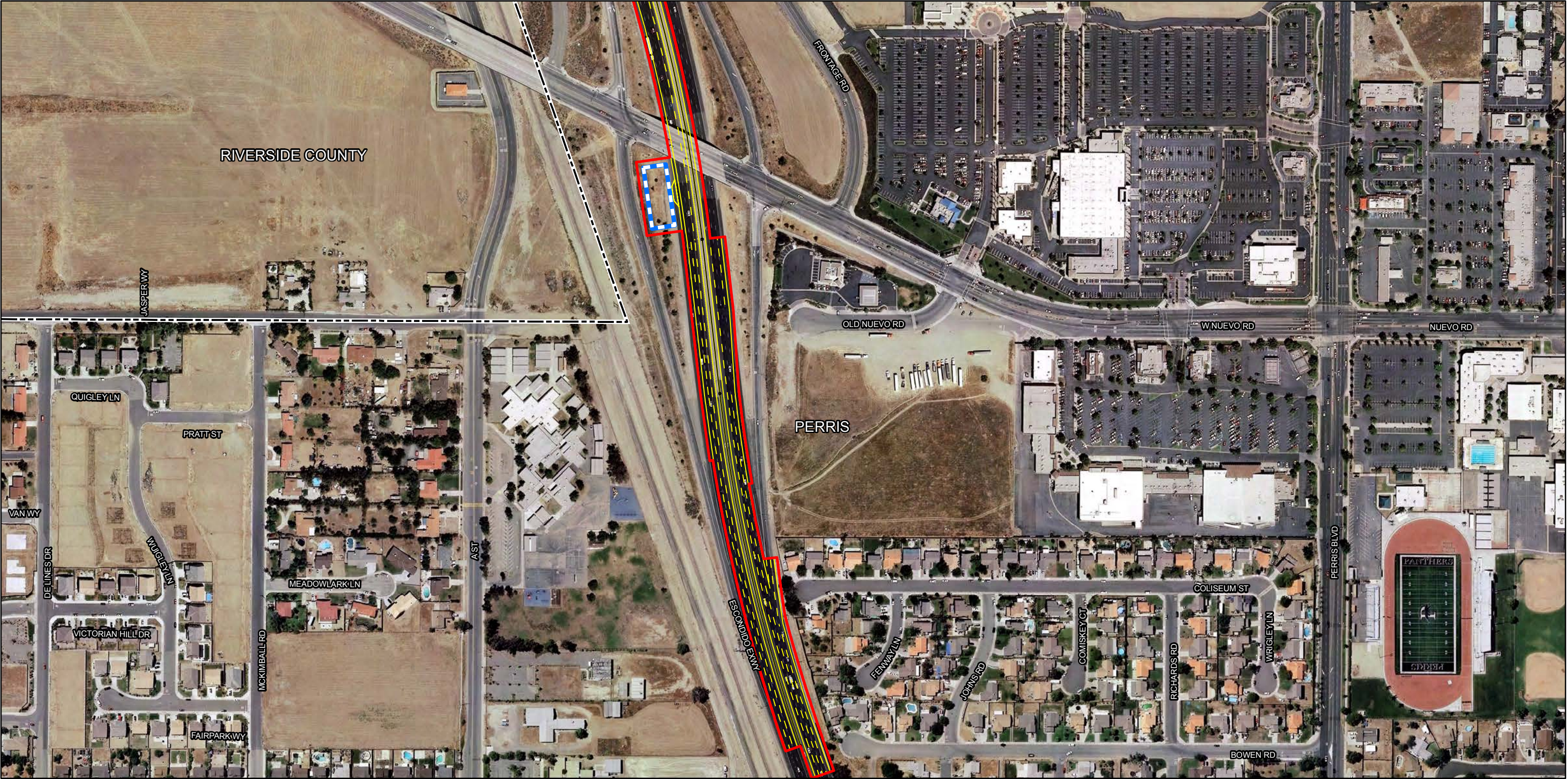


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





LEGEND

Limits of Proposed Improvements for Preferred Alternative	Retaining Wall	Wildlife Crossing
Bridge Placement	Construction Easement	Dry Culvert Crossing (approximate location)
Existing Bridge	Utility Easement	BMP
Alternative 9 SJRB Roadway Linework	Cut Line	Proposed Drainage
	Fill Line	City Limits

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

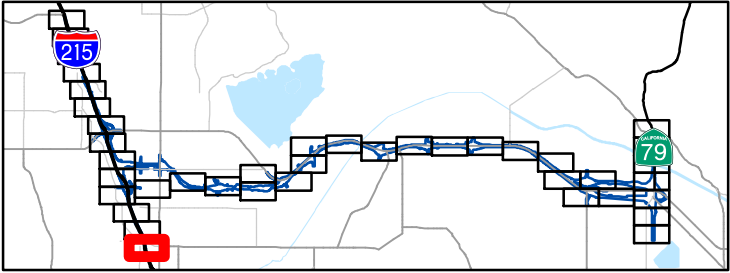
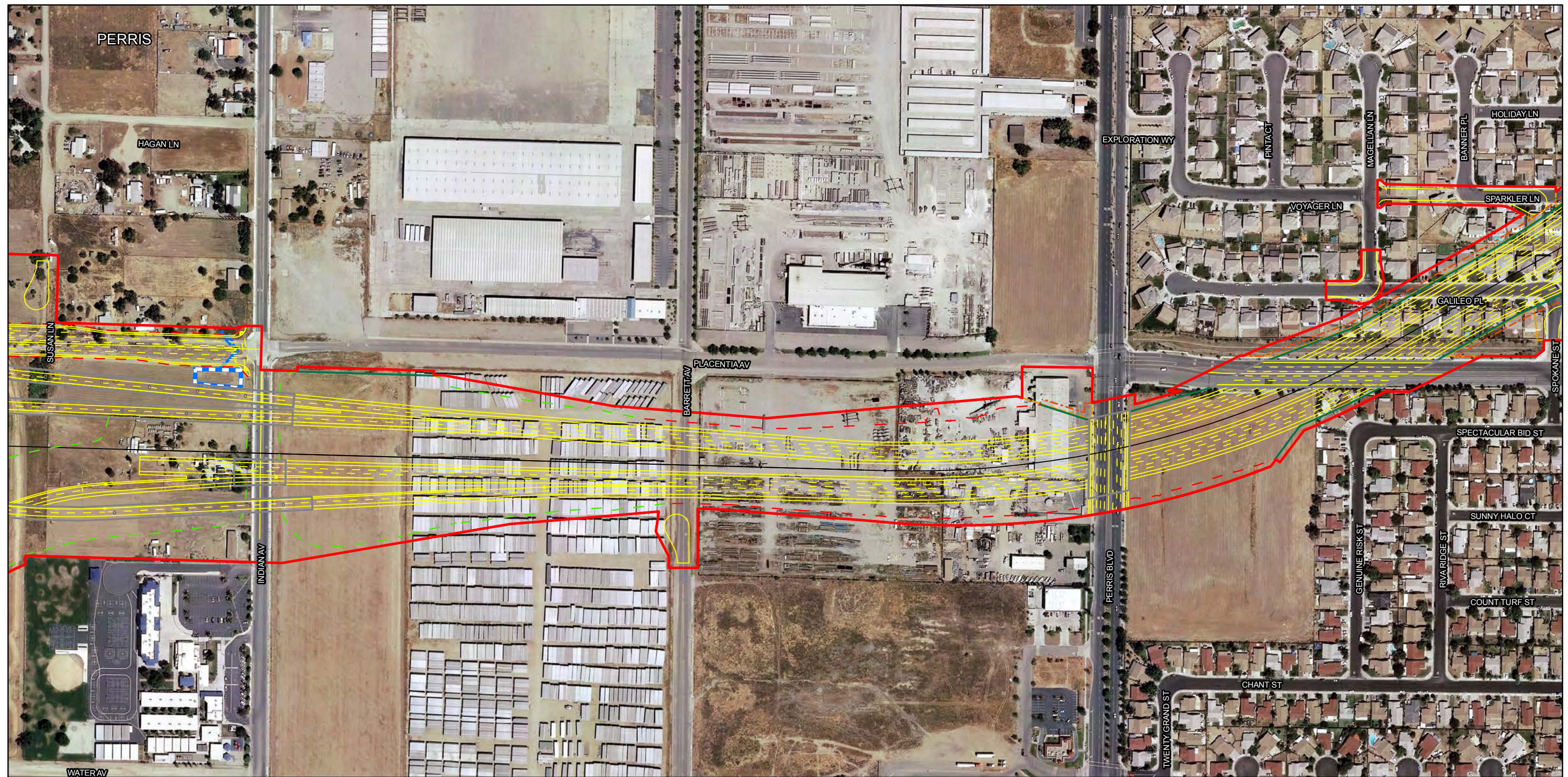


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
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|--|--|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

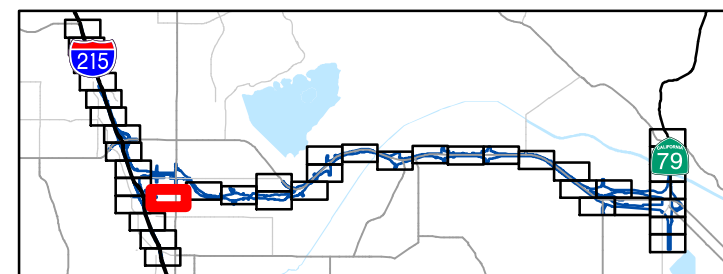
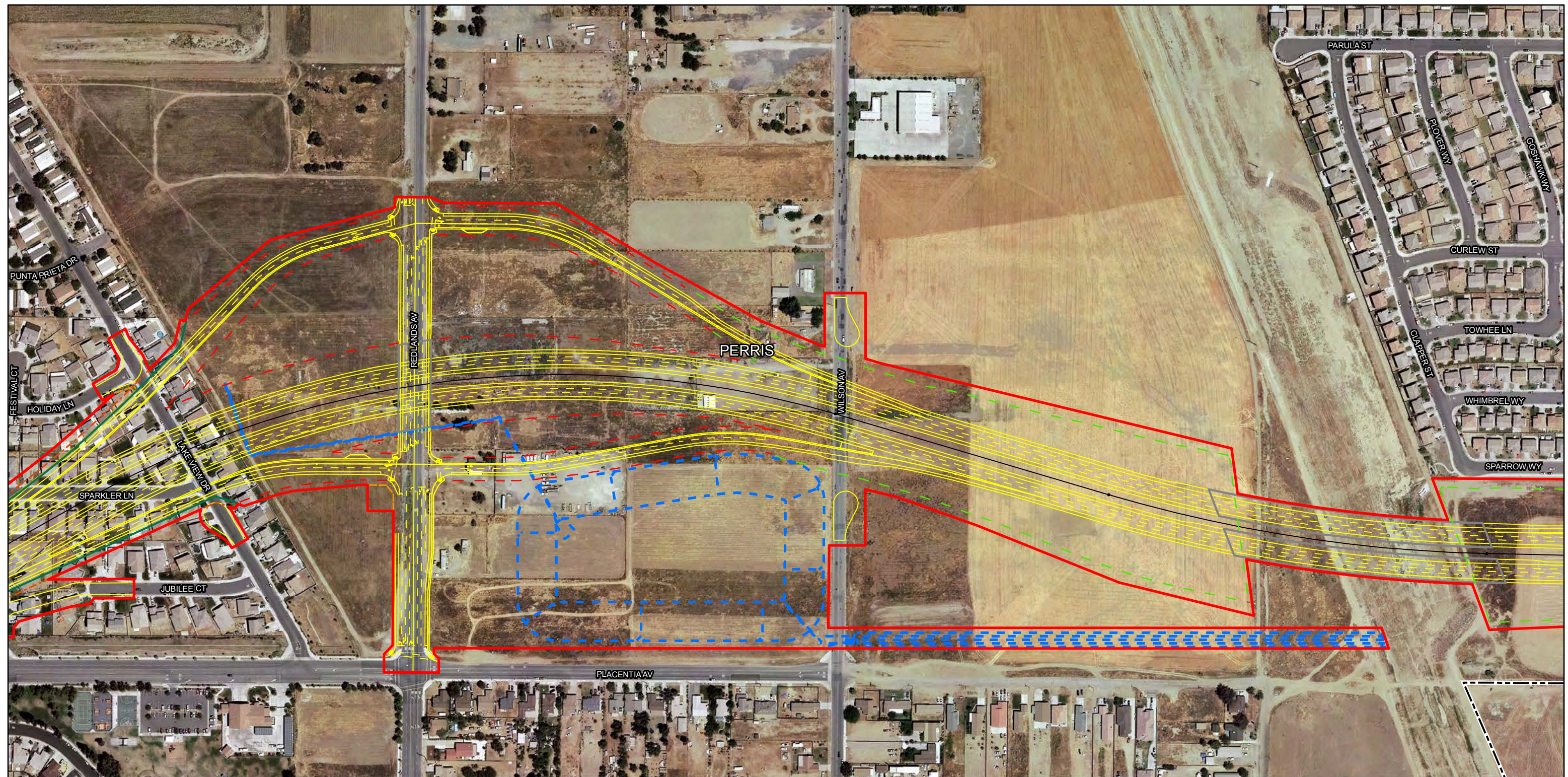


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





LEGEND

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|--|--|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

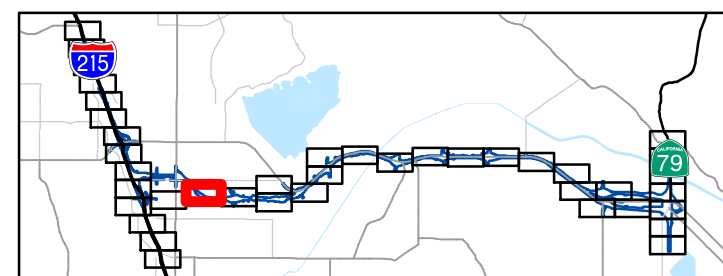
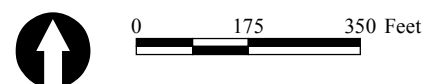
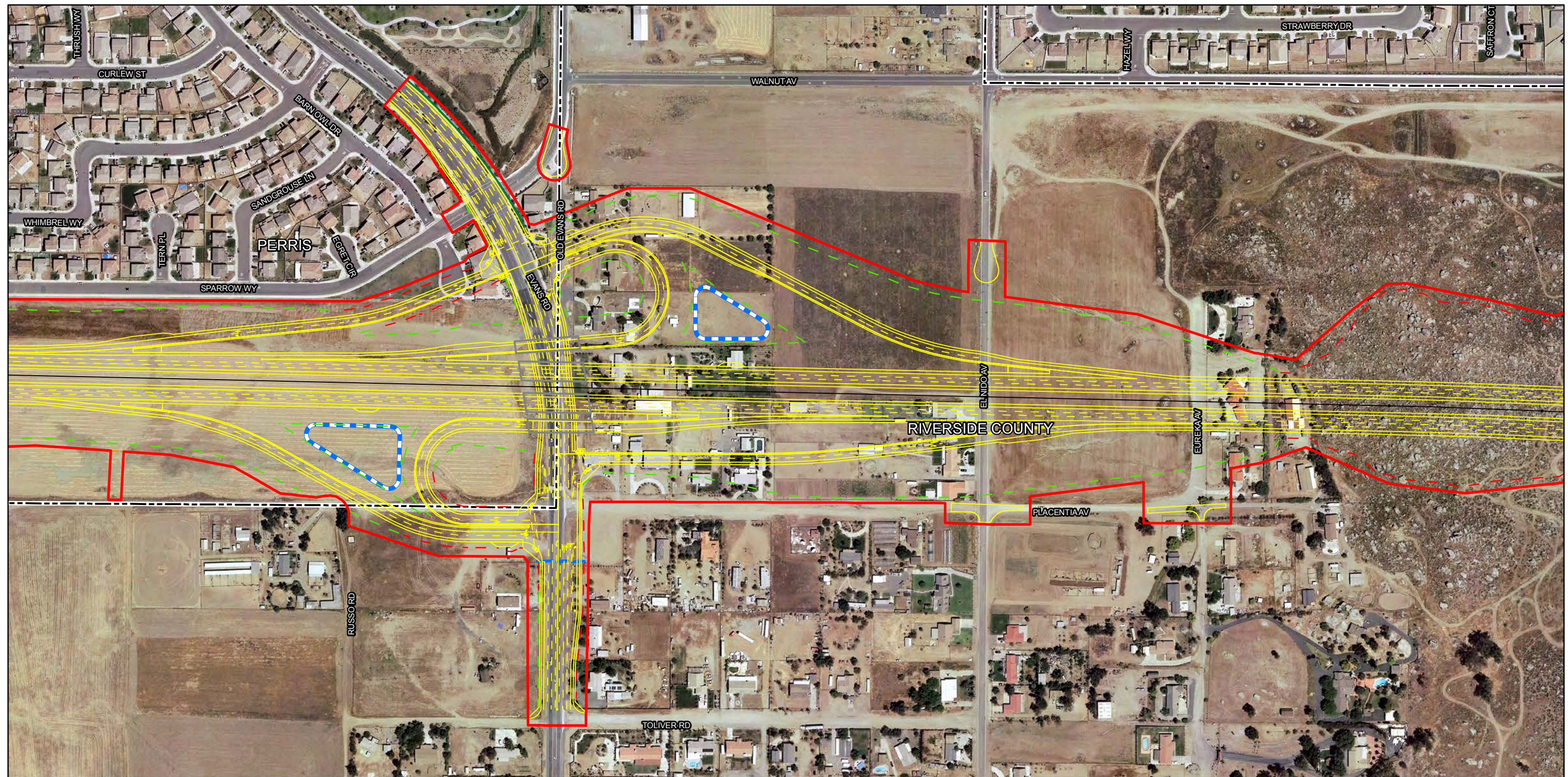


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
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|--|--|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

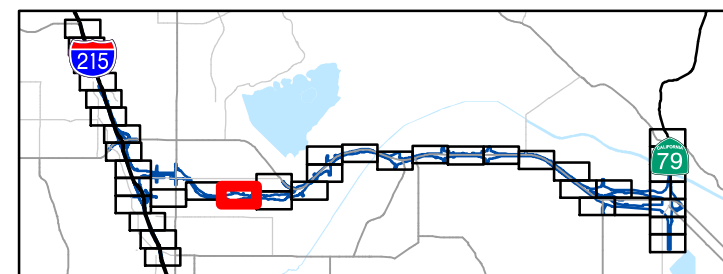
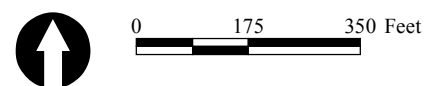
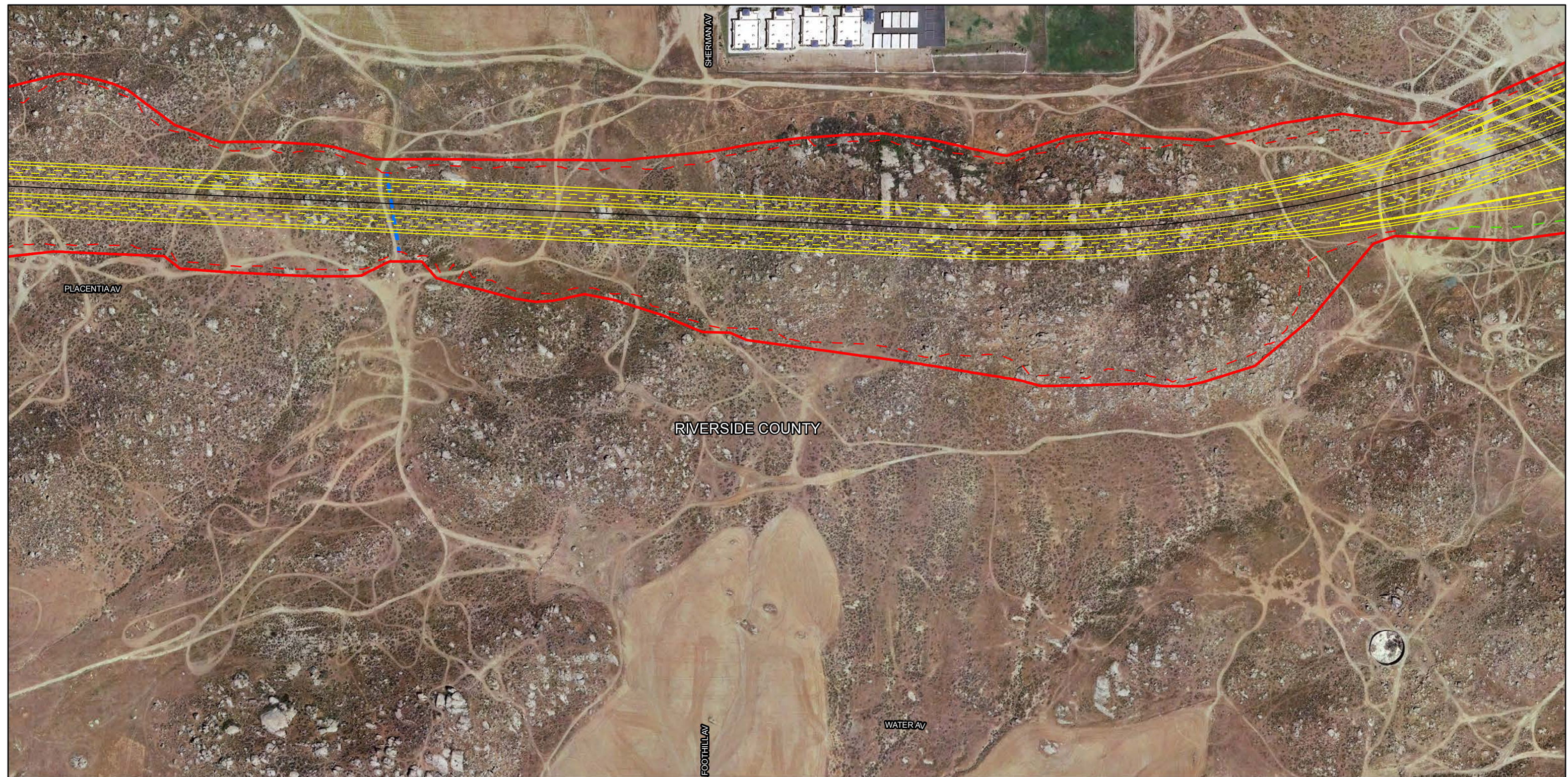


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

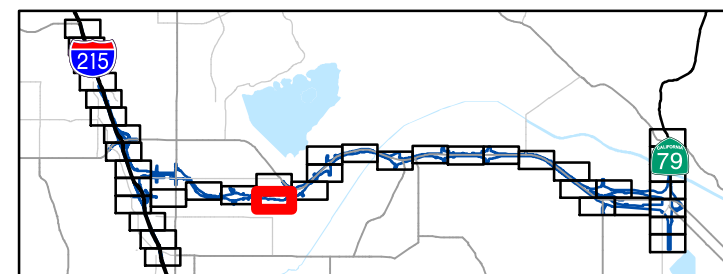
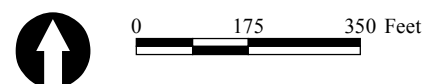
08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
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|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

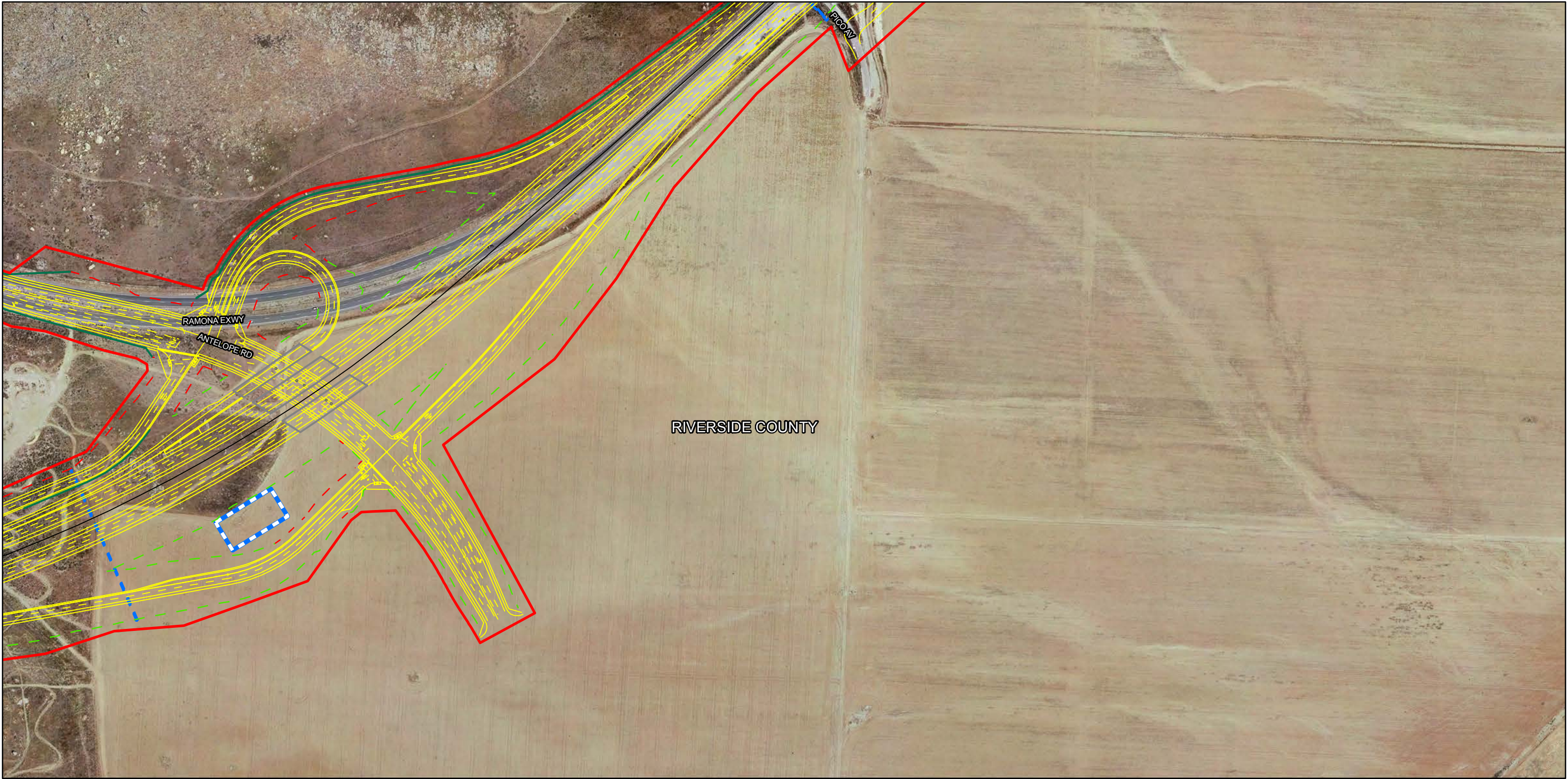


Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

FIGURE H-1
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LEGEND

Limits of Proposed Improvements for Preferred Alternative

Bridge Placement

Existing Bridge

Alternative 9 SJRB Roadway Linework

Retaining Wall

Construction Easement

Utility Easement

Cut Line

Fill Line

Wildlife Crossing

Dry Culvert Crossing (approximate location)

BMP

Proposed Drainage

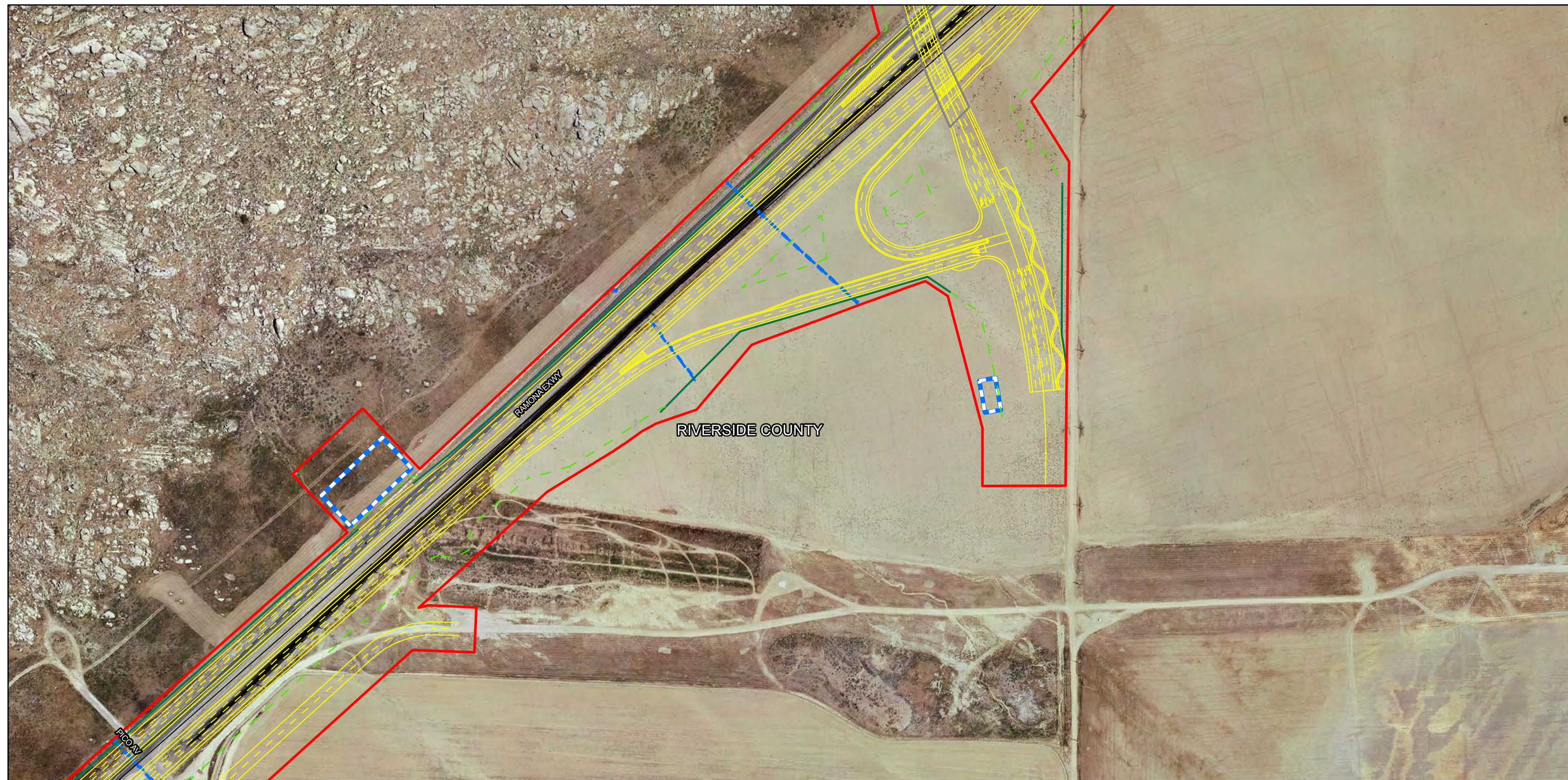
City Limits

FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

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LEGEND

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|--|---|--|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

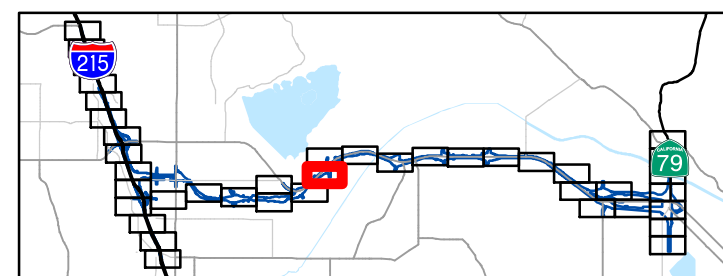
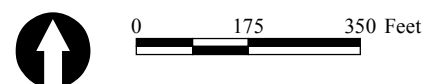
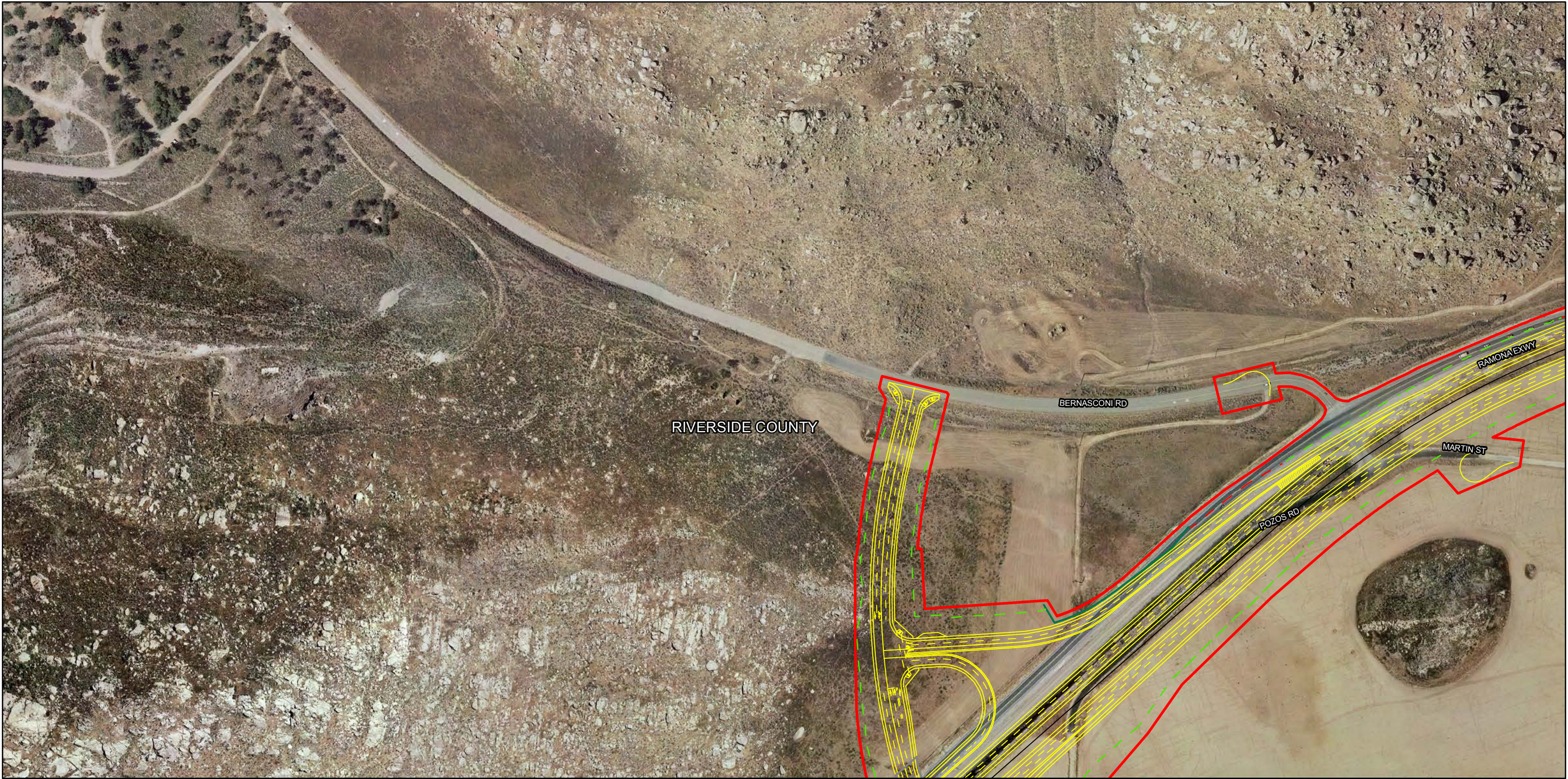


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

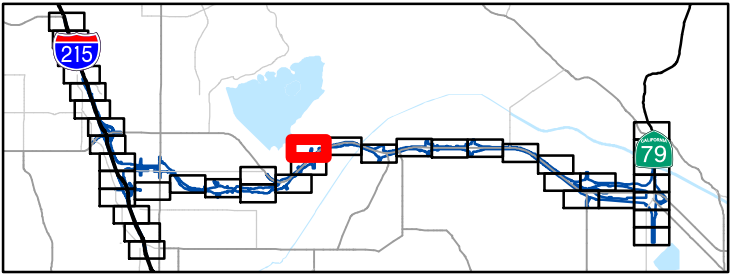
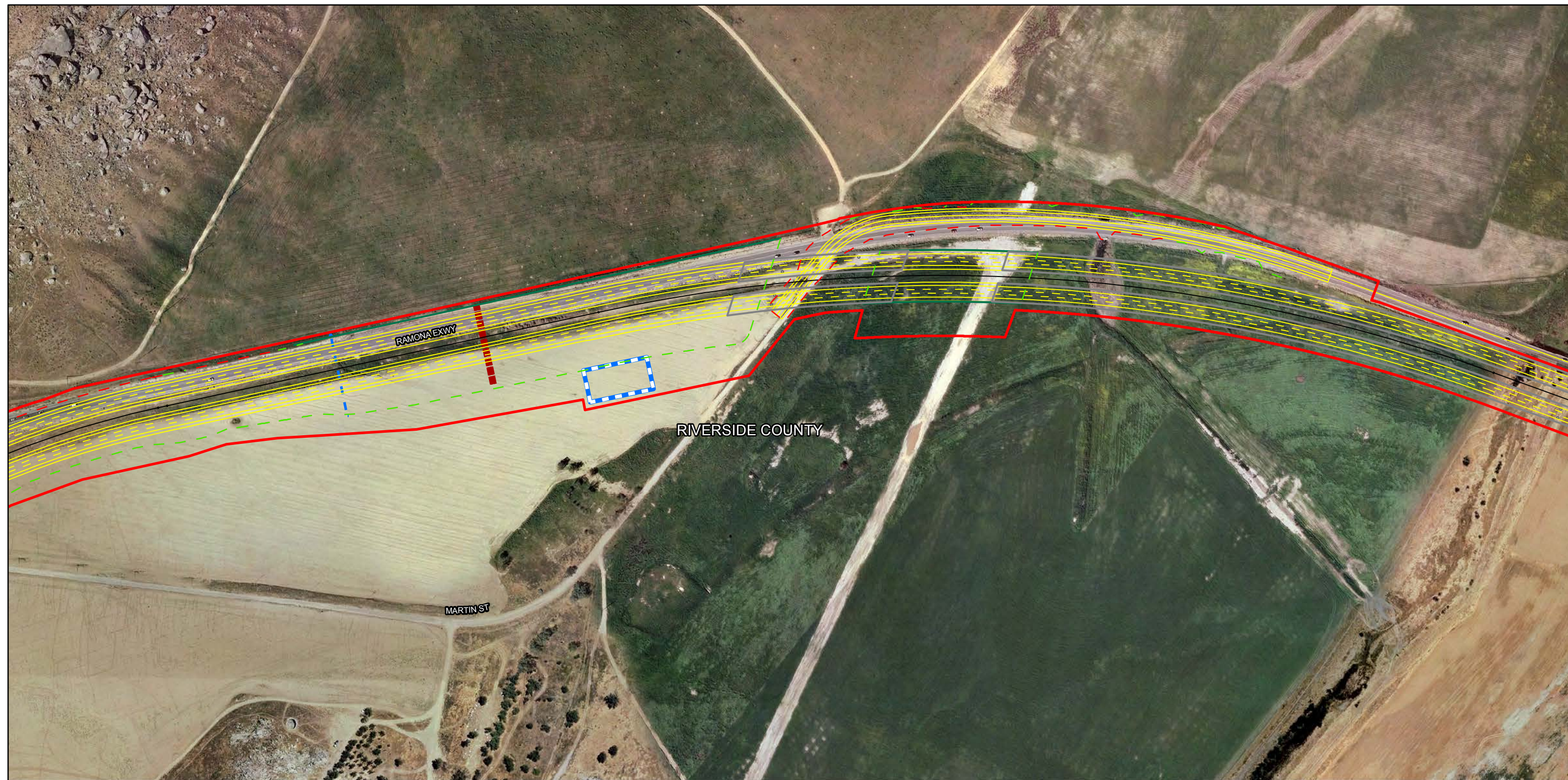


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|--|--|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

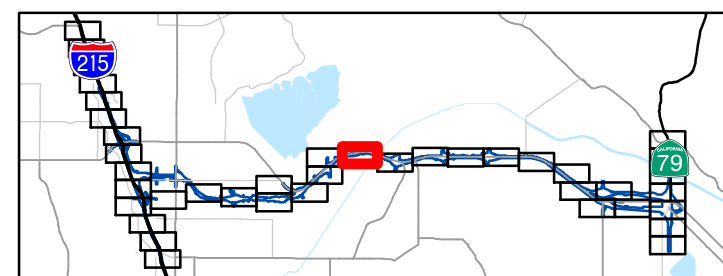


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

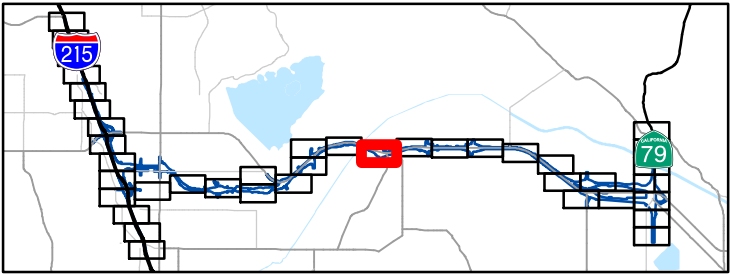
08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND**
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|--|---|--|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

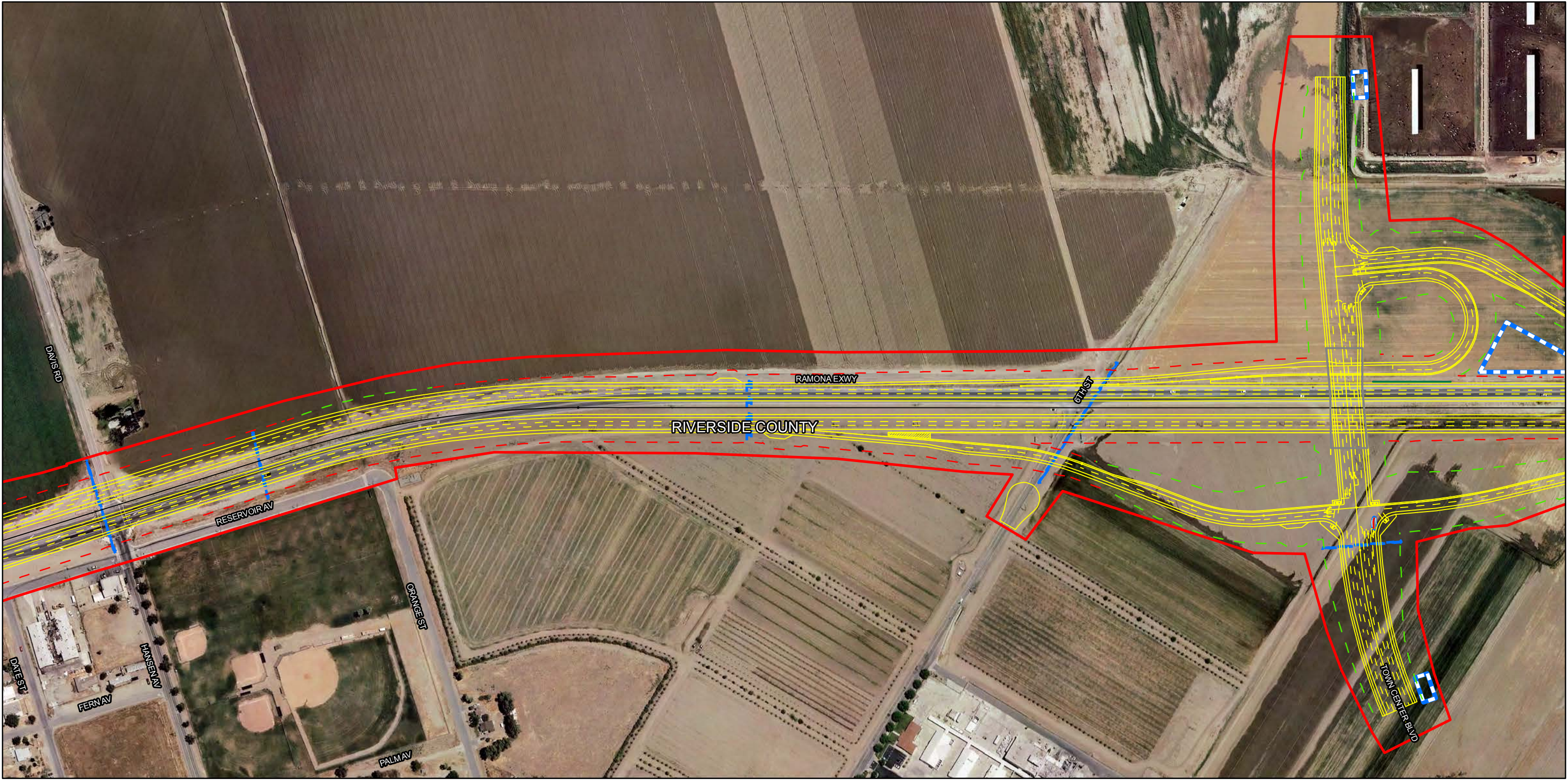


Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

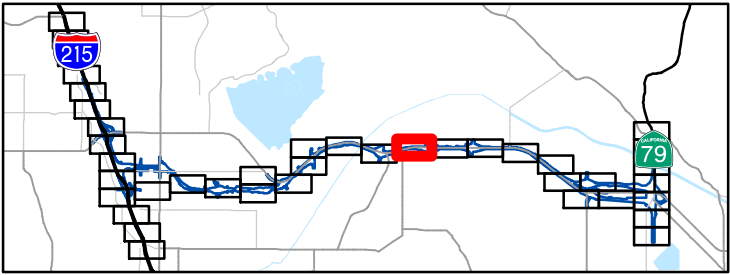


FIGURE H-1
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- LEGEND
- | | | |
|--|---|--|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

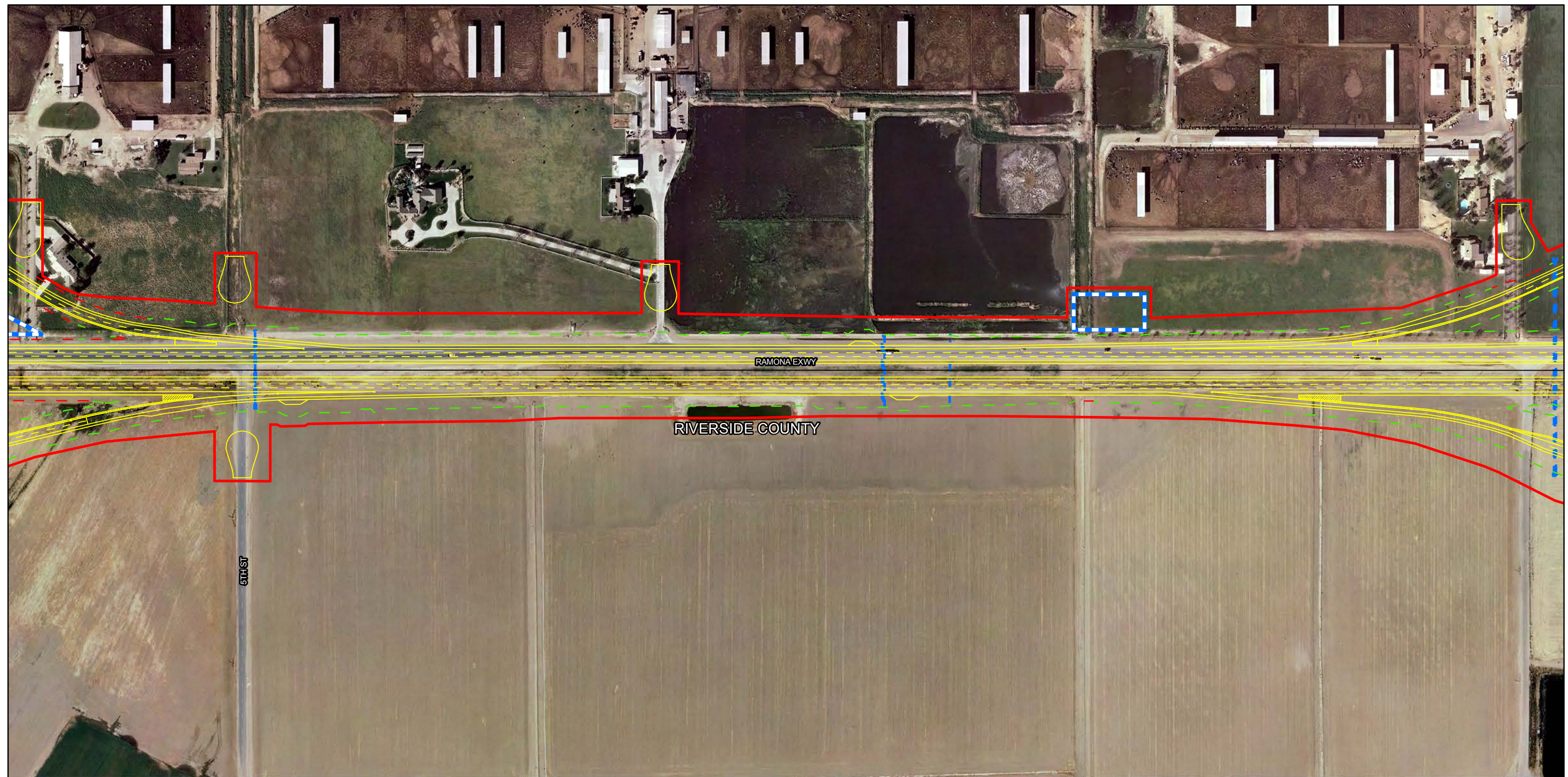


Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

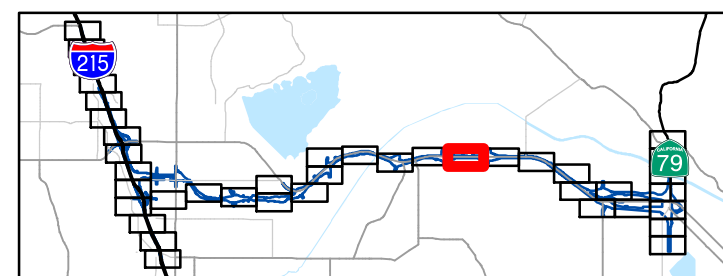
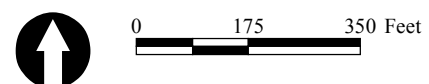
FIGURE H-1
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- LEGEND
- | | | |
|--|---|--|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

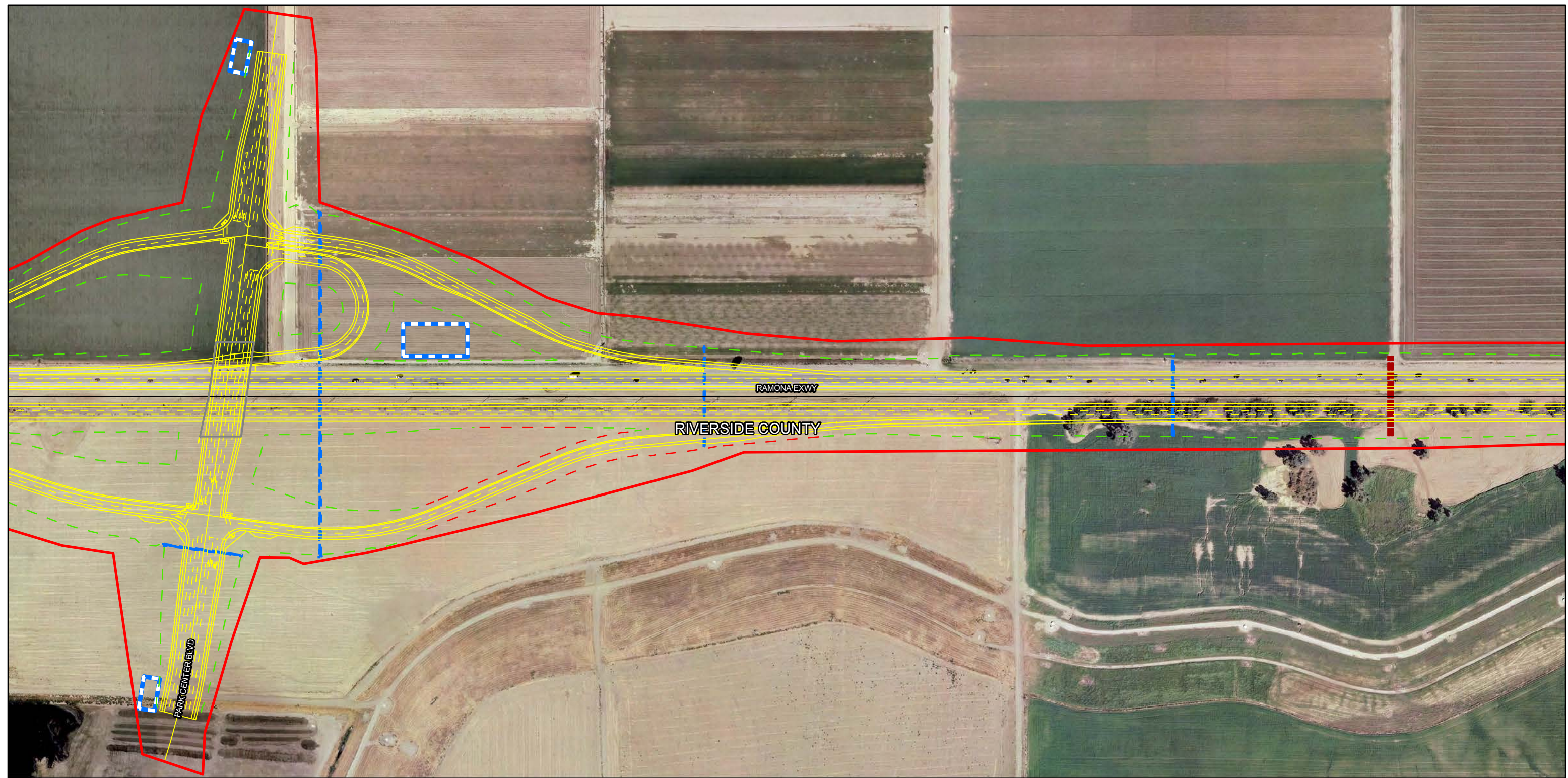


Alternative 9 Modified San Jacinto River Bridge Design Variation










08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

FIGURE H-1
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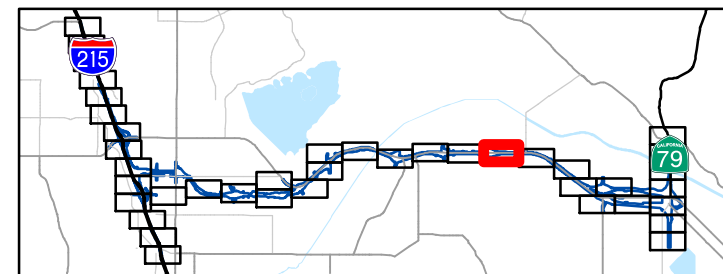




LEGEND

- | | | | | | |
|--|---|---|-----------------------|---|---|
|  | Limits of Proposed Improvements for Preferred Alternative |  | Retaining Wall |  | Wildlife Crossing |
|  | Bridge Placement | | Construction Easement | | Dry Culvert Crossing (approximate location) |
|  | Existing Bridge |  | Utility Easement |  | BMP |
| | Alternative 9 SJRB Roadway Linework | | Cut Line | | Proposed Drainage |
| | |  | Fill Line |  | City Limits |
- SOURCE: Jacobs Engineering (07/2014); TRM (2006); Eagle Aerial (2010)

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





LEGEND

Limits of Proposed Improvements for Preferred Alternative	Retaining Wall	Wildlife Crossing
Bridge Placement	Construction Easement	Dry Culvert Crossing (approximate location)
Existing Bridge	Utility Easement	BMP
Alternative 9 SJRB Roadway Linework	Cut Line	Proposed Drainage
	Fill Line	City Limits

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

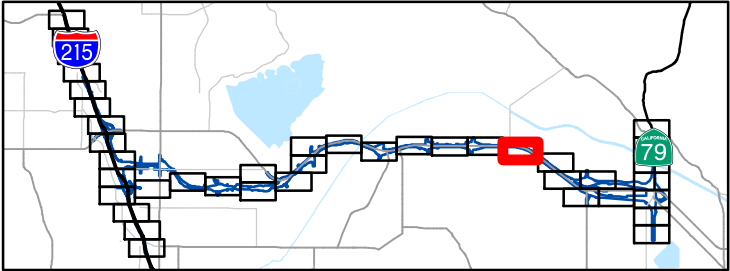
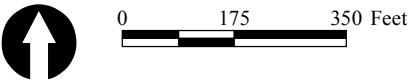


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|--|---|--|
| --- Limits of Proposed Improvements for Preferred Alternative | --- Retaining Wall | --- Wildlife Crossing |
| --- Bridge Placement | --- Construction Easement | --- Dry Culvert Crossing (approximate location) |
| --- Existing Bridge | --- Utility Easement | --- BMP |
| --- Alternative 9 SJRB Roadway Linework | --- Cut Line | --- Proposed Drainage |
| | --- Fill Line | --- City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

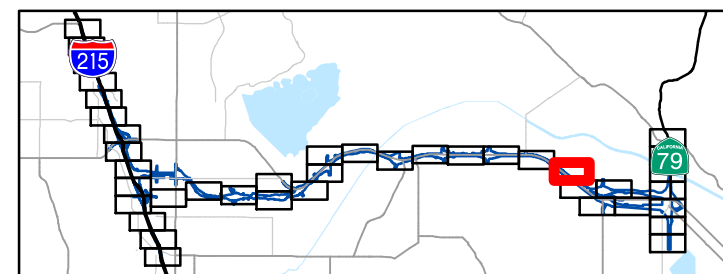
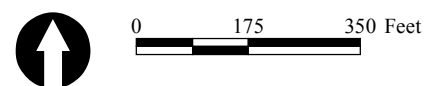
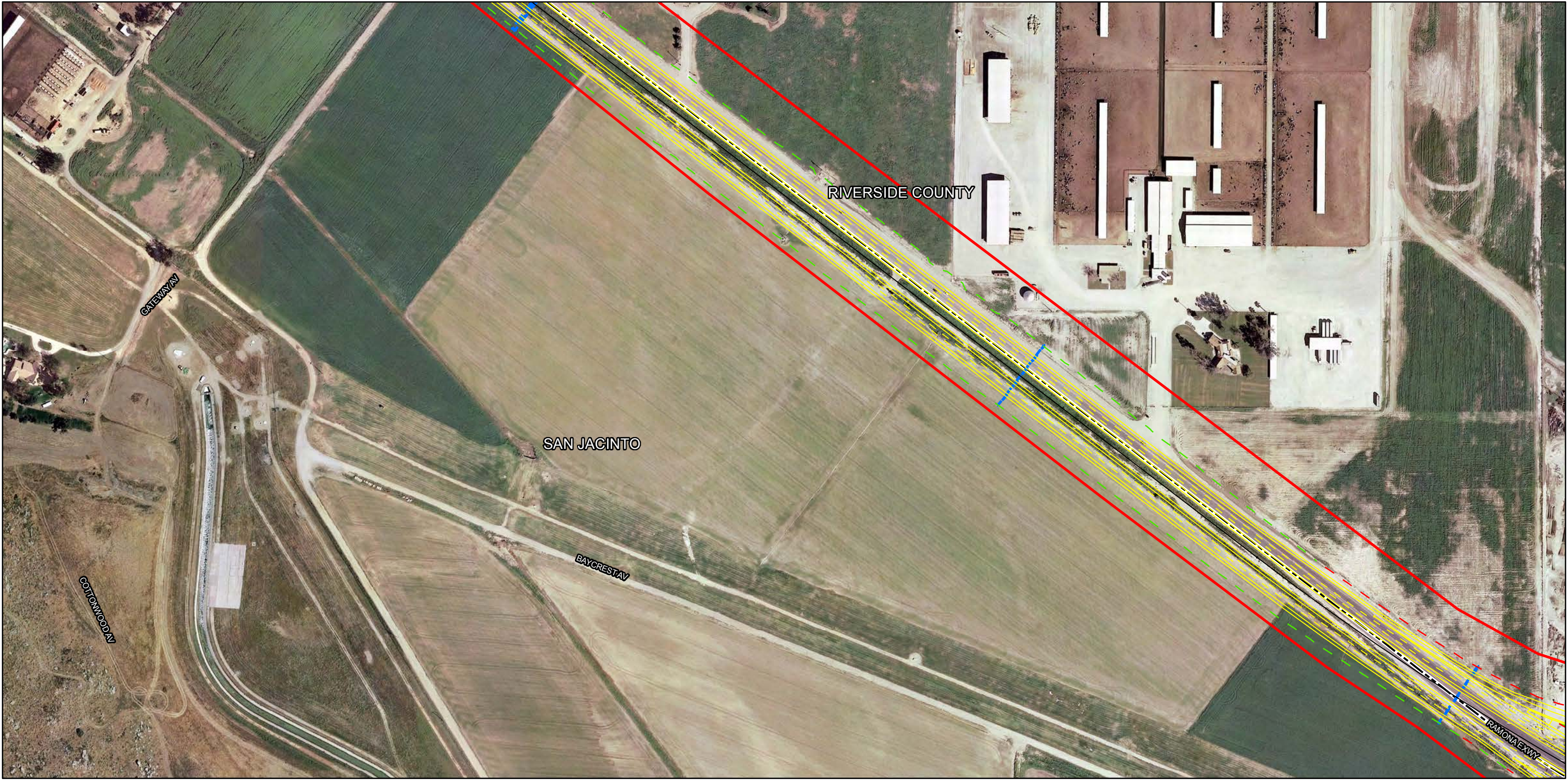


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 080000125)





LEGEND

- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

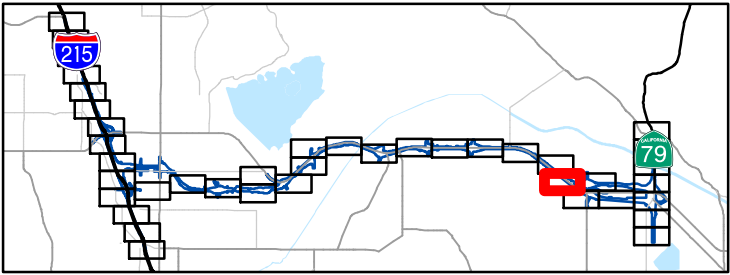
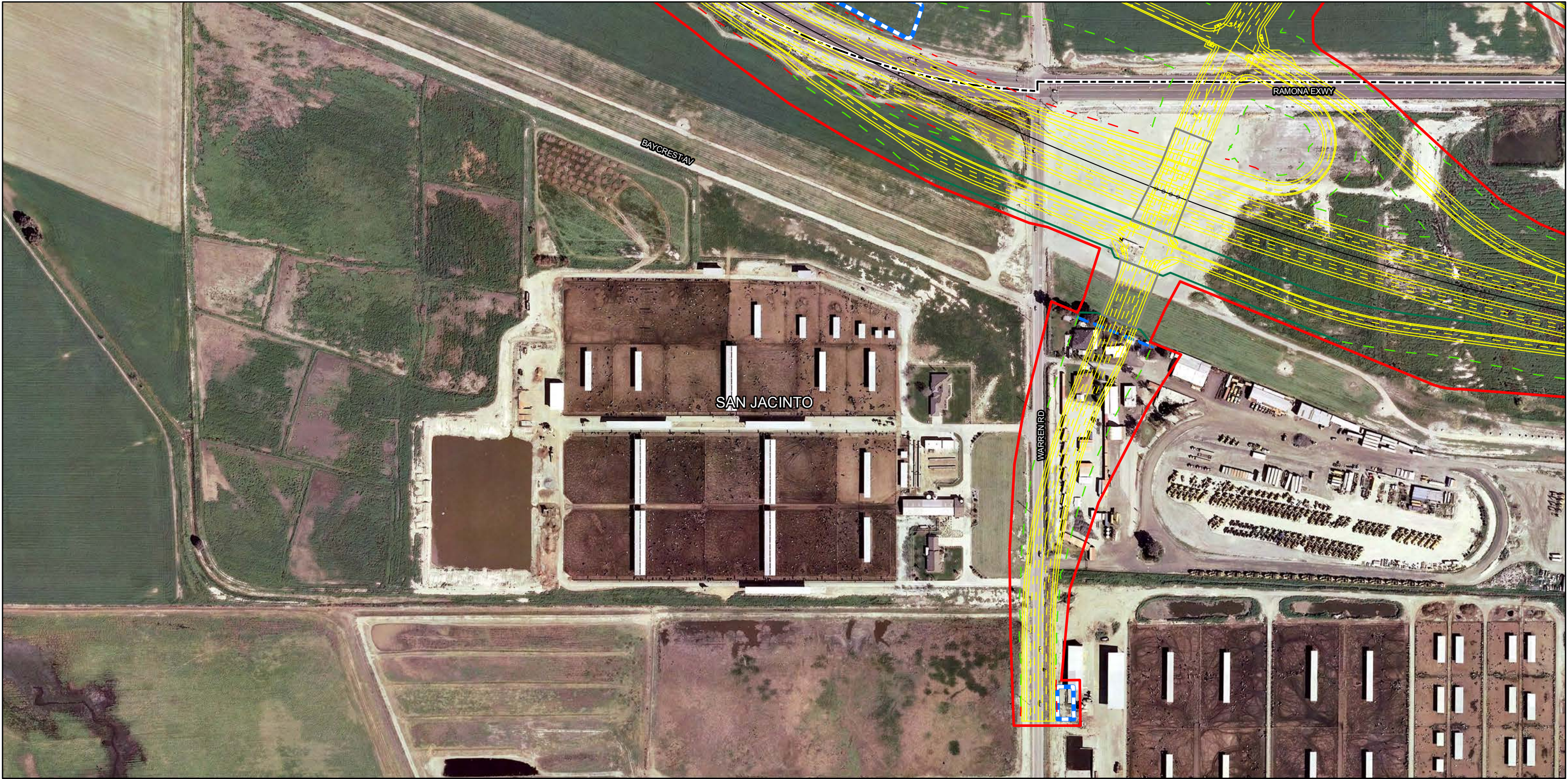


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 080000125)





- LEGEND
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|--|---|---|
| Limits of Proposed Improvements for Preferred Alternative | — Retaining Wall | - - - Wildlife Crossing |
| Bridge Placement | - - - Construction Easement | - - - Dry Culvert Crossing (approximate location) |
| Existing Bridge | - - - Utility Easement | BMP |
| — Alternative 9 SJRB Roadway Linework | - - - Cut Line | - - - Proposed Drainage |
| | - - - Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

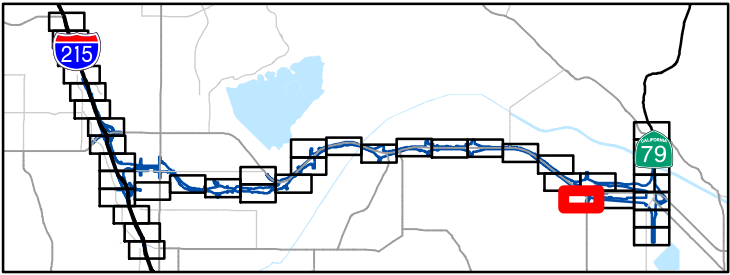


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

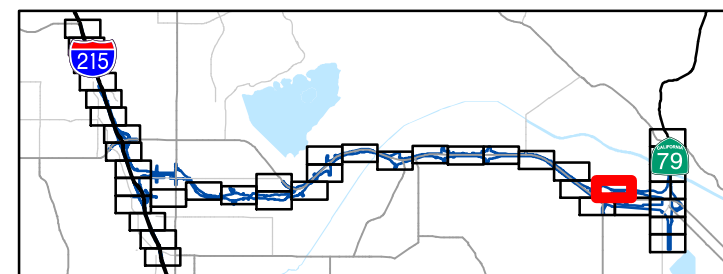
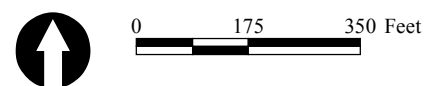
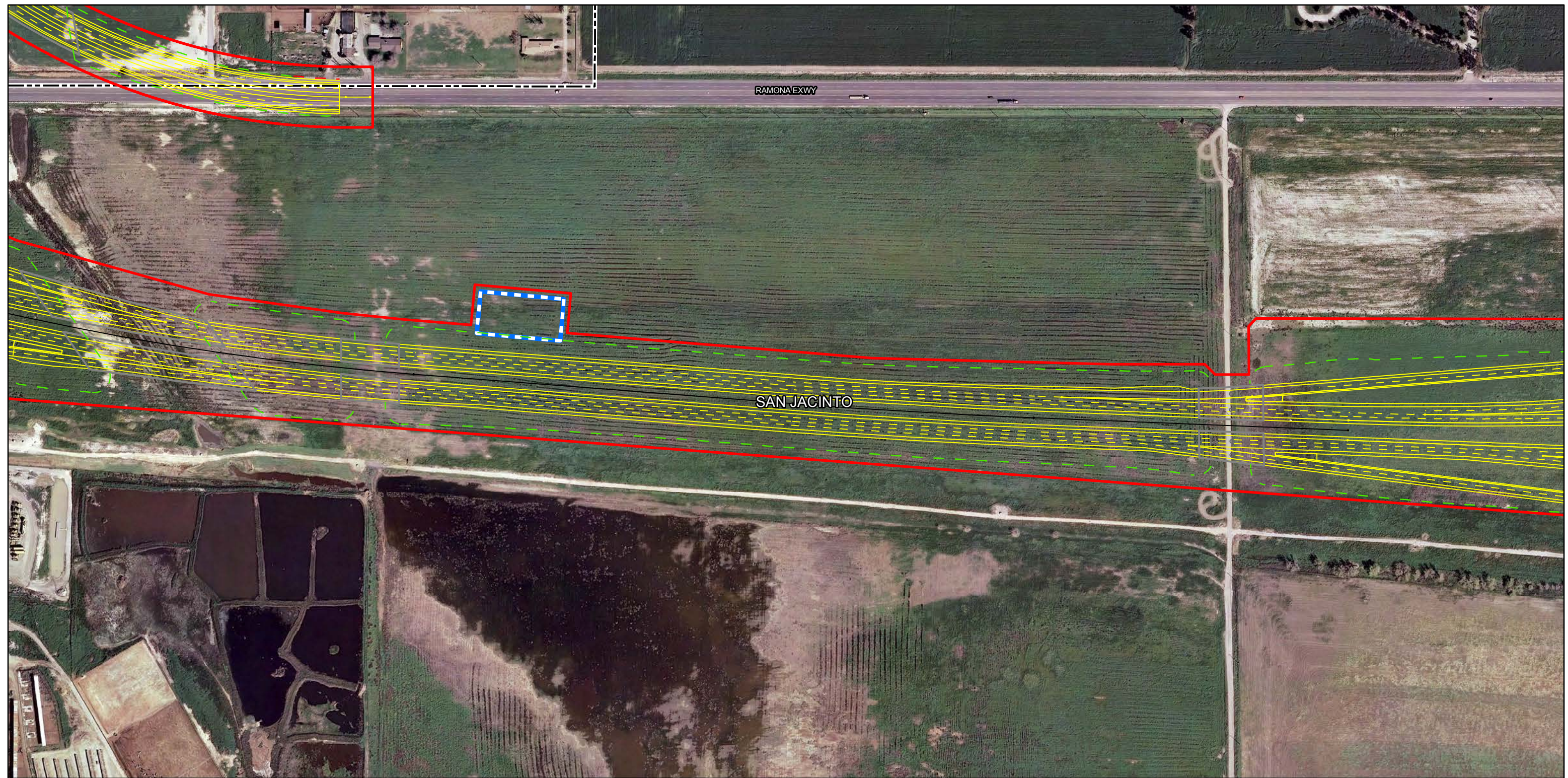


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

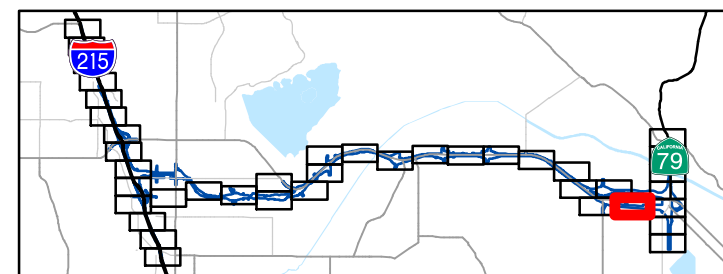




LEGEND

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| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

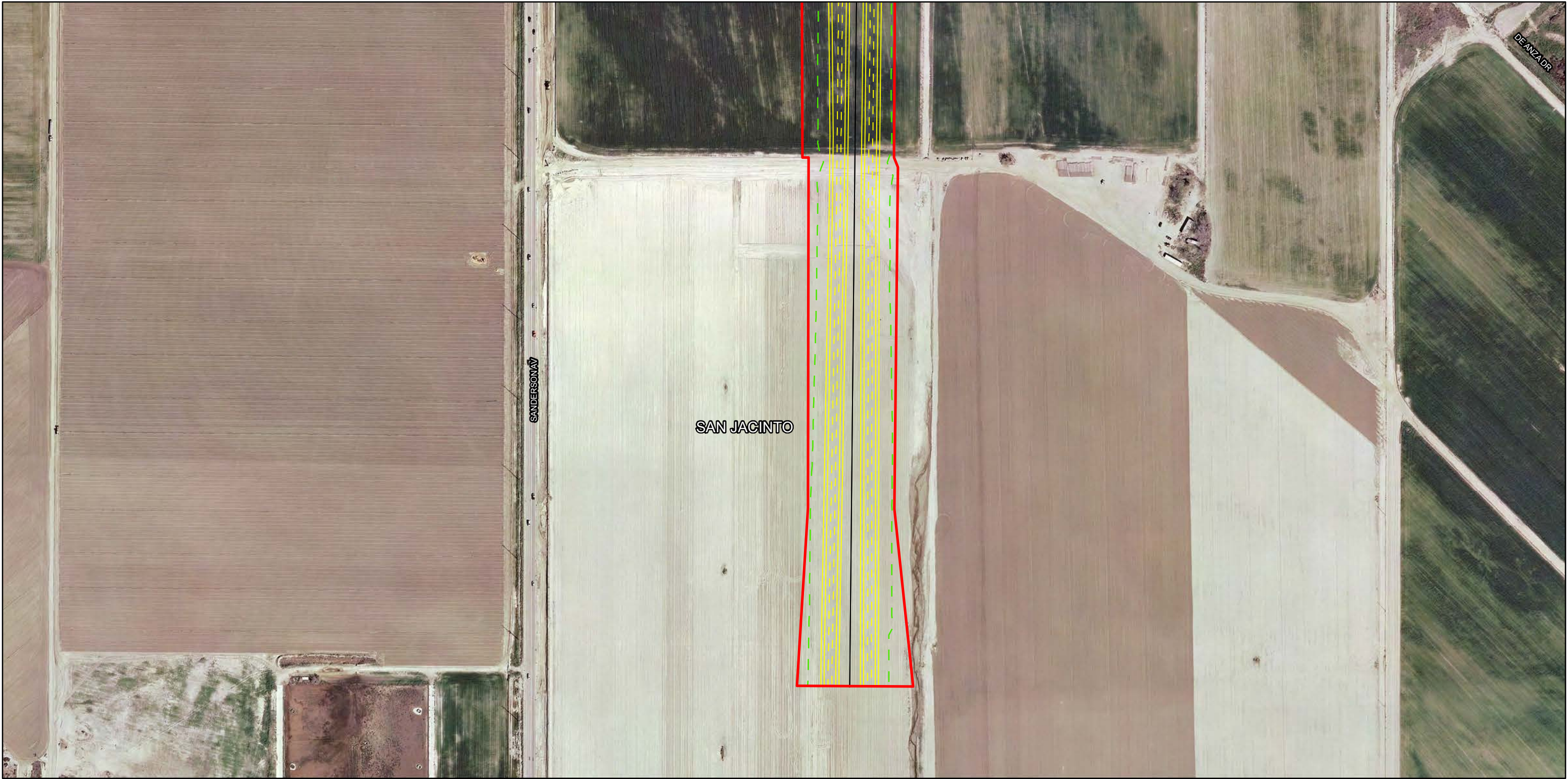


Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

FIGURE H-1
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- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

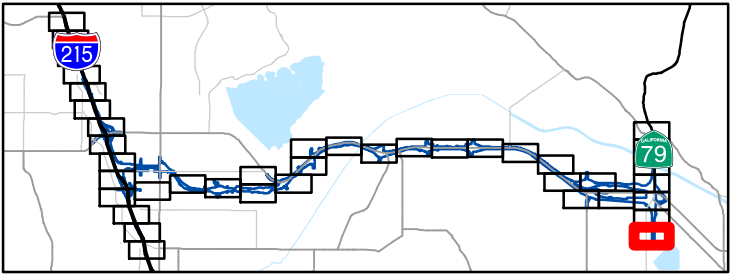
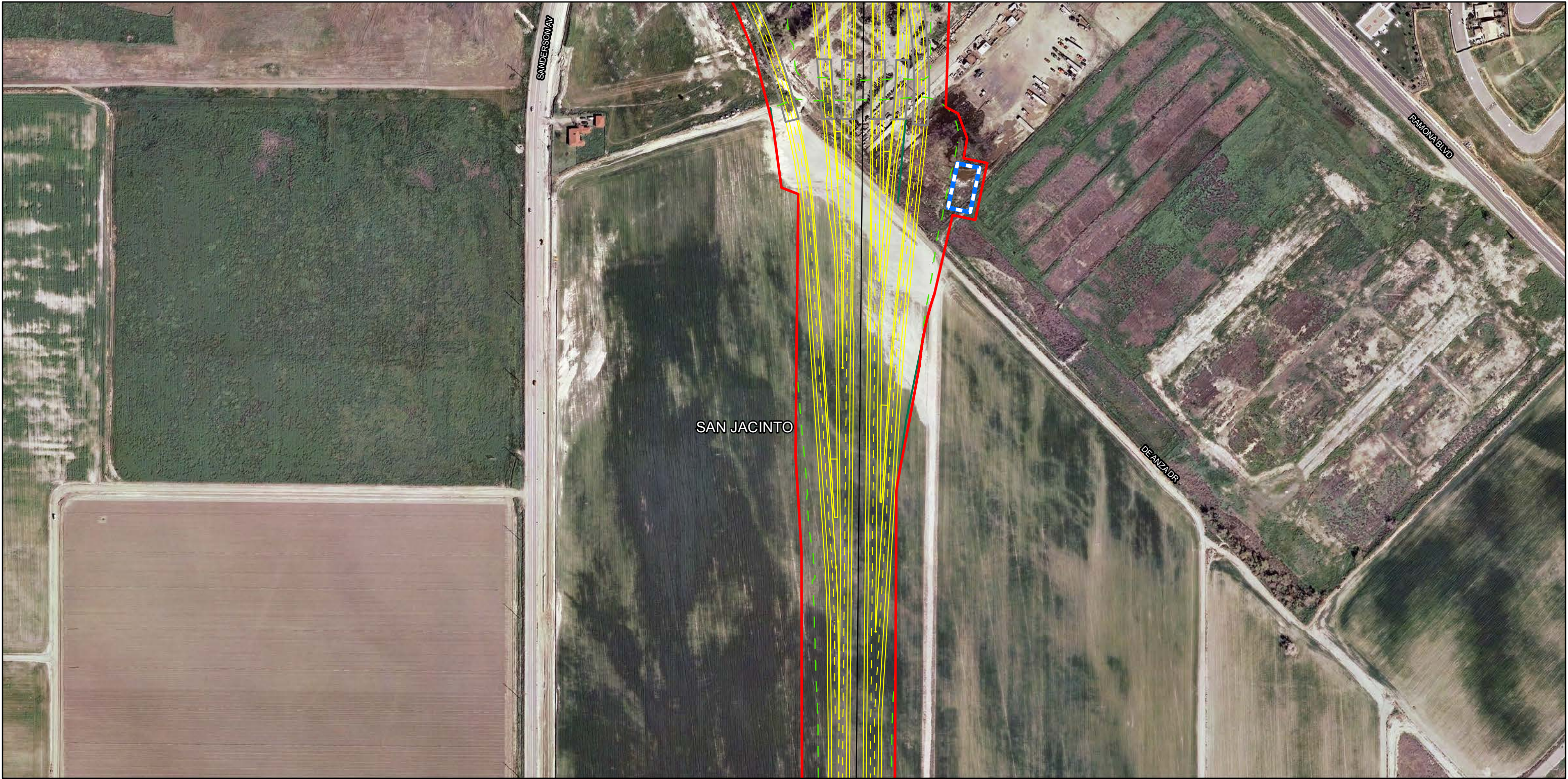


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

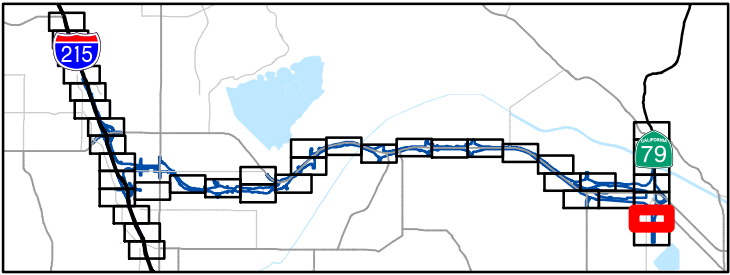
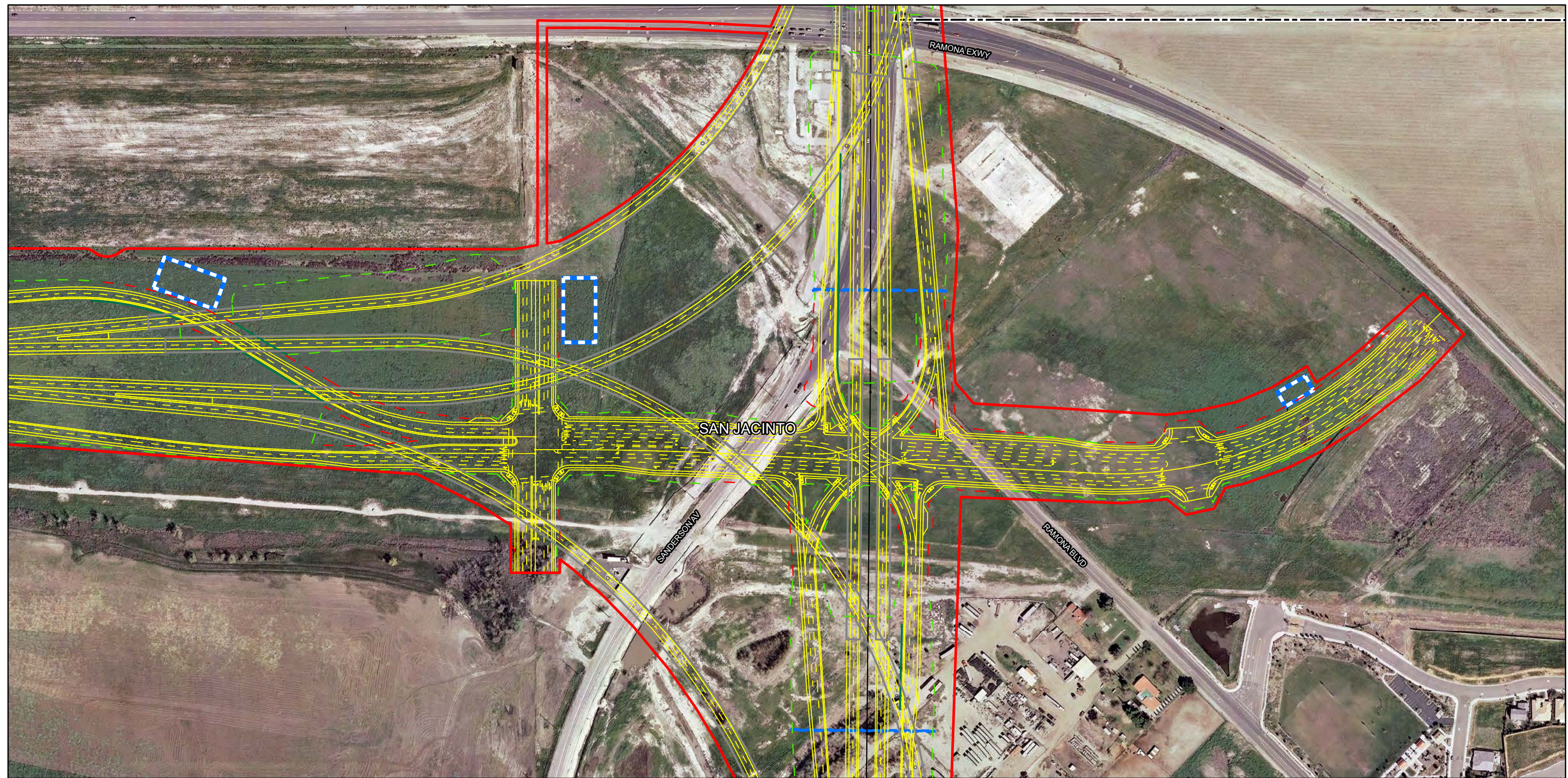


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
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|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

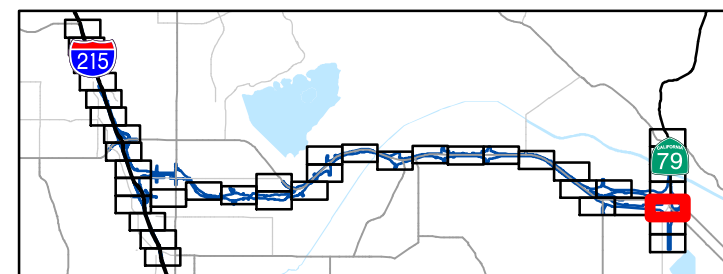
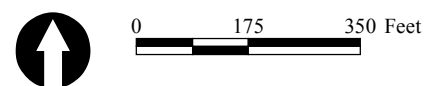
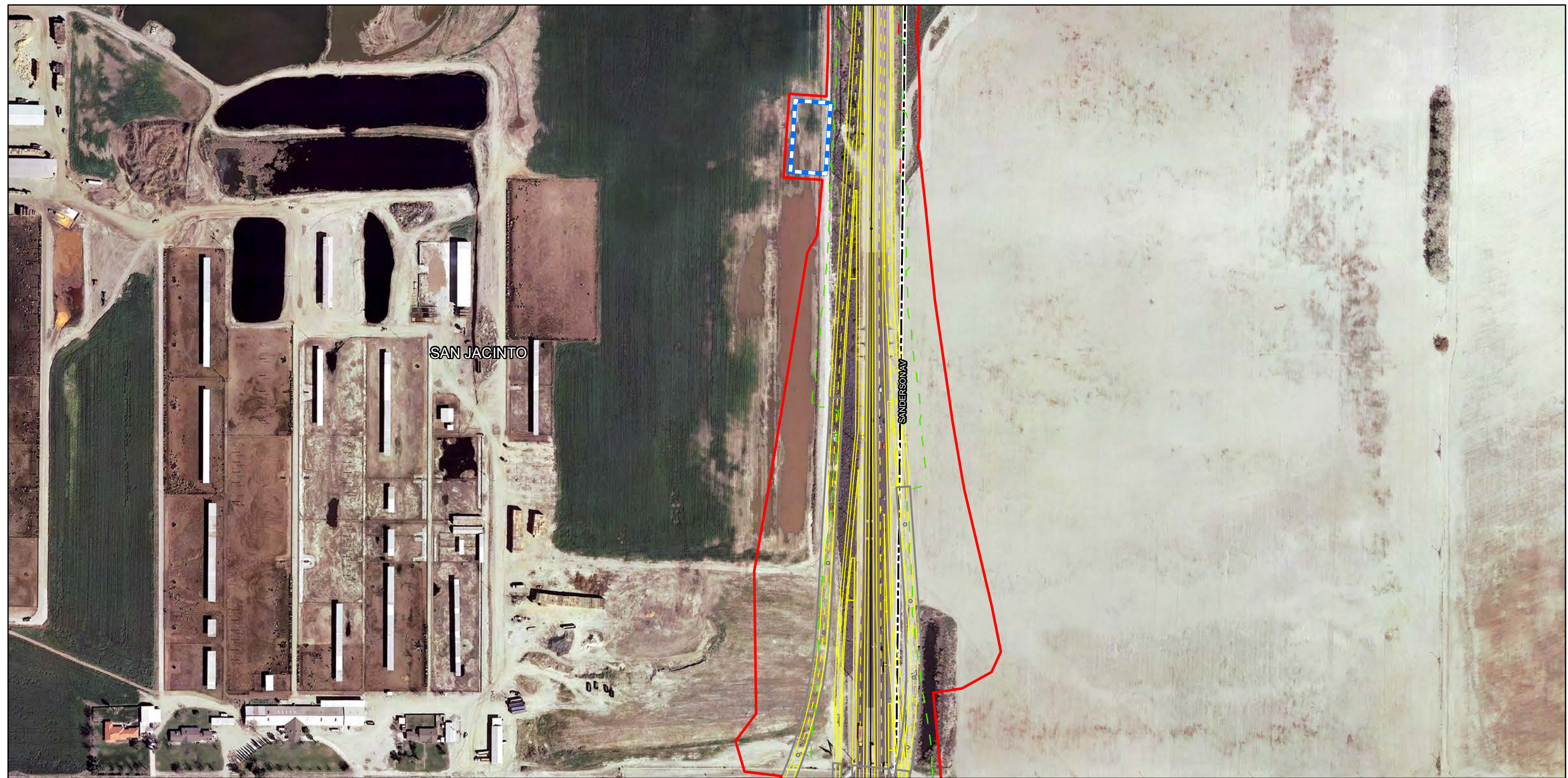


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 080000125)





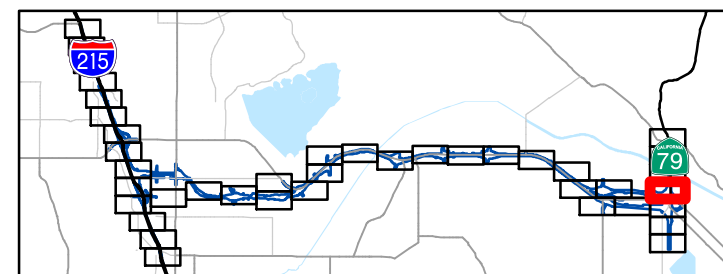
LEGEND

- | | | | | | |
|--|--|---|-----------------------|---|--|
|  | Limits of Proposed Improvements
for Preferred Alternative |  | Retaining Wall |  | Wildlife Crossing |
|  | Bridge Placement |  | Construction Easement |  | Dry Culvert Crossing
(approximate location) |
|  | Existing Bridge | | Utility Easement |  | BMP |
|  | Alternative 9 SJRB Roadway
Linework |  | Cut Line |  | Proposed Drainage |
| | | | Fill Line |  | City Limits |
- SOURCE: Jacobs Engineering (07/2014); TRM (2006); Eagle Aerial (2010)

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)



0 175 350 Feet

FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
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|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)



0 175 350 Feet

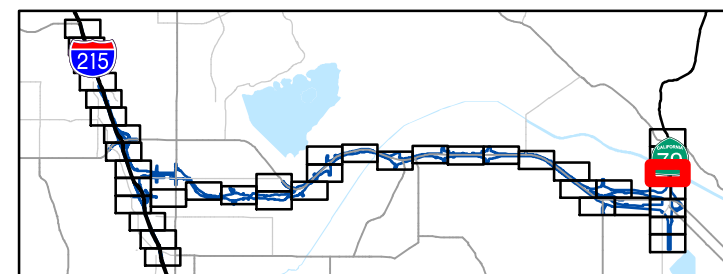
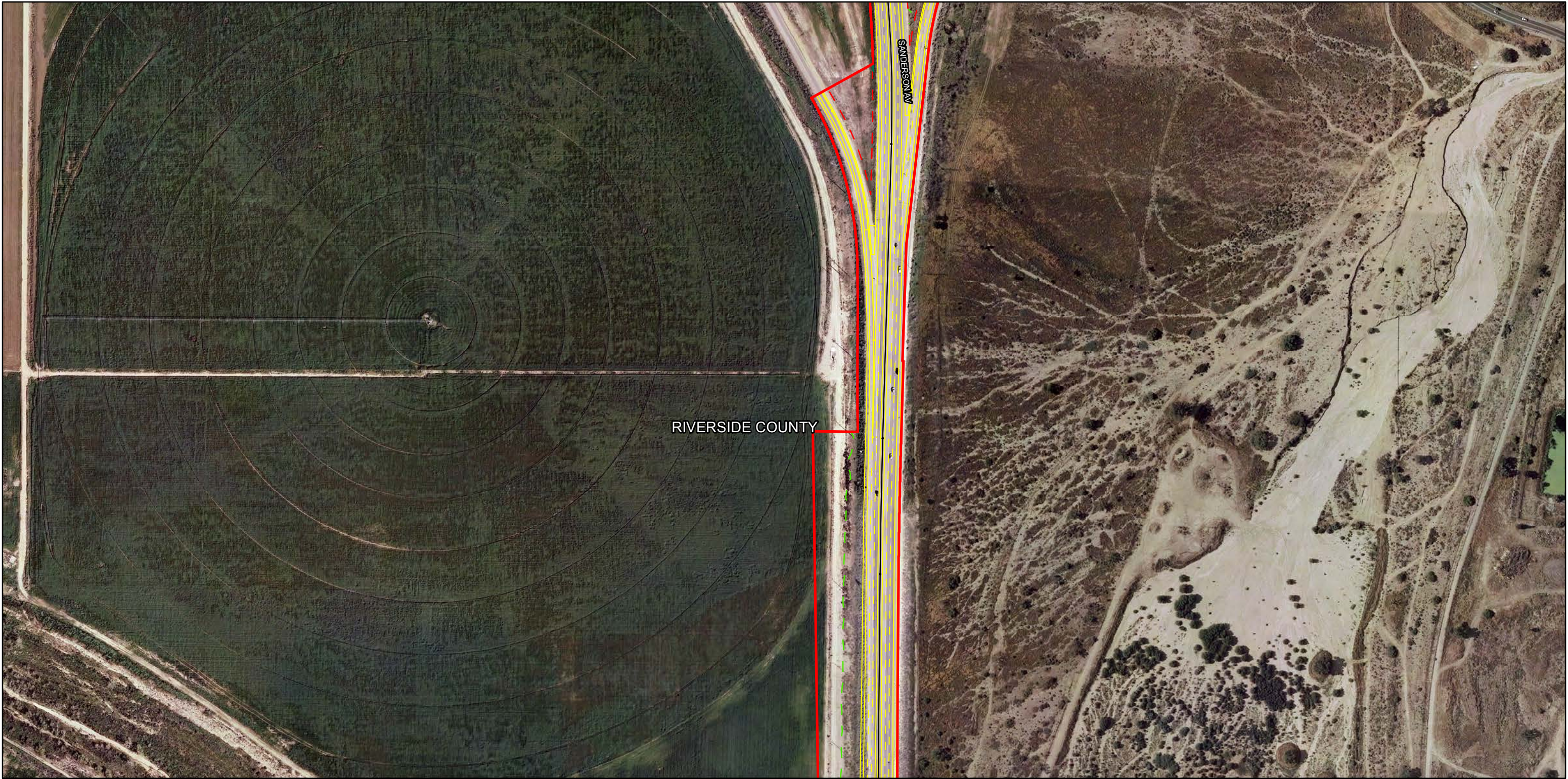


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





- LEGEND
- | | | |
|---|-----------------------|---|
| Limits of Proposed Improvements for Preferred Alternative | Retaining Wall | Wildlife Crossing |
| Bridge Placement | Construction Easement | Dry Culvert Crossing (approximate location) |
| Existing Bridge | Utility Easement | BMP |
| Alternative 9 SJRB Roadway Linework | Cut Line | Proposed Drainage |
| | Fill Line | City Limits |

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

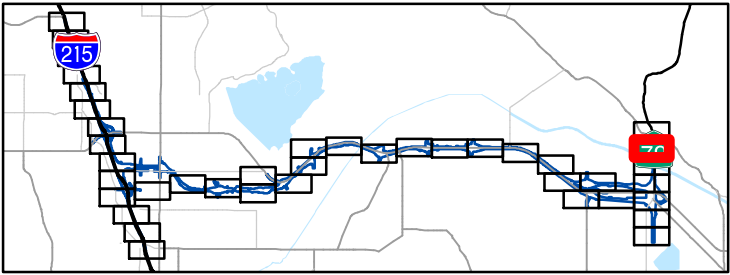


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)





LEGEND

Limits of Proposed Improvements for Preferred Alternative	Retaining Wall	Wildlife Crossing
Bridge Placement	Construction Easement	Dry Culvert Crossing (approximate location)
Existing Bridge	Utility Easement	BMP
Alternative 9 SJRB Roadway Linework	Cut Line	Proposed Drainage
	Fill Line	City Limits

SOURCE: Jacobs Engineering (07/2014); TBM (2006); Eagle Aerial (2010)

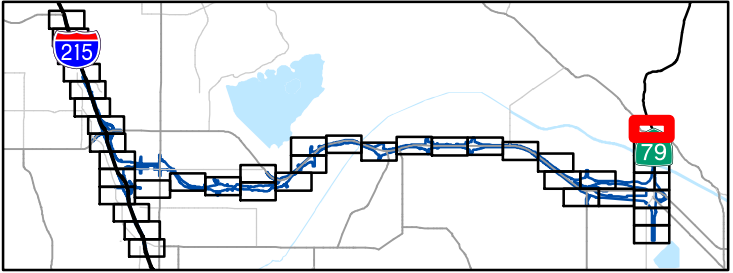


FIGURE H-1
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Alternative 9 Modified San Jacinto River Bridge Design Variation

08-RIV-MCP PM 0.0/16.3; 08-RIV-215 PM 28.0/34.3
EA 08-0F3200 (PN 0800000125)

